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Vol. 2

An Analysis of Evacuation Time Estimates Around 52 Nuclear Power Plant Sites

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Summary Tables and Maps

Prepared by T. Urbanik II, TTI
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Texas Transportation Institute

Pacific Northwest Laboratory

Prepared for
U.S. Nuclear Regulatory
Commission

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PNL-3662
Vol. 2

An Analysis of Evacuation Time Estimates Around 52 Nuclear Power Plant Sites

Summary Tables and Maps

Manuscript Completed: June 1981
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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
NRC FIN No. B2311

ABSTRACT

Volume 2 contains the summaries of evacuation time estimates which were provided by nuclear reactor licensees. These summaries are condensed versions of the evaluations and tables in Volume 1. Maps of the corresponding emergency planning zones for the nuclear power plants are also included. For convenience, each summary and its related map are on facing pages.

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FOREWORD

This report is a companion to a previously released publication entitled, "An Analysis of Evacuation Time Estimates Around 52 Nuclear Power Plant Sites, Volume I" dated February 1981, NUREG/CR-1856, PNL-3662.

The contents of Volume II consist of summaries of evacuation time estimates provided by nuclear reactor licensees and maps of the corresponding emergency planning zone (EPZ) for 52 nuclear power plants. The summaries are condensed versions of the evaluations and tables that are reported in Volume I.

The maps in this report were prepared from standard 1:250,000 scale United States Geological Survey (USGS) maps. In most cases, the sectors that are listed in the evacuation time estimate summaries are those described for each site by the respective licensee. Several methods were used by licensees to divide the plume exposure emergency planning zone into sectors:

- 90° quadrants with North, South, East and West boundaries
- Standard 22 1/2° sector designators identified with either letters or directions as follows:

Sector	Direction
A	N
B	NNE
C	NE
D	ENE
E	E
F	ESE
G	SE
H	SSE
J	S
K	SSW
L	SW
M	WSW
N	W
P	WNW
Q	NW
R	NNW

- Geographical or political boundaries (e.g., Davis-Besse, Millstone, Three Mile Island and Shoreham sites).
- A numbering system, identifying 90° sectors at 2, 5, and 10 mile radii:

Designator	Distance
I, II, III, IV	2 miles
V, VI, VII, VIII	5 miles
IX, X, XI, XII	10 miles.

In the case where geographical or political boundaries were described by the licensee, the sectors on the maps in this report illustrate the approximate boundaries. The reader should understand that the actual boundaries are rivers, shorelines or other geographical features.

The components of evacuation time are defined as follows:

Response Time - The time required for all individuals to physically move out of an area. This time component is shown separately for permanent residents (PPR) and for transients (TPR). Separate estimates are shown for normal (NC) and adverse conditions (AC).

General Population Evacuation Time - The sum of notification, preparation and response (both permanent and transient populations) time. Separate totals are shown for normal (GPTNC) and adverse (GPTAC) weather conditions.

Special Population Response Time - The time required to evacuate institutions and the time required by other special conditions that are largely independent of general population evacuation times. An example of a special condition is the evacuation time required for recreational pleasure boats at sites adjacent to bodies of water. Separate estimates are possible for normal (SPNRC) and adverse (SPRAC) weather conditions.

These definitions were not used consistently. In some cases, the transient population information is included in the permanent population or the special population catgories. These deviations are noted in the summaries.

ACKNOWLEDGMENTS

The authors would like to acknowledge the assistance of E. Lorraine Entwisle, Graphics Illustrator, and Scotty G. Getchell, Photography Work Leader, Pacific-Northwest Laboratory.

Site	State	Latitude			Longitude		
		°	'	"	°	'	"
Arkansas	Arkansas	35	18	36	93	13	51
Beaver Valley	Pennsylvania	40	37	19	80	26	2
Big Rock Point	Michigan	45	21	33	85	11	41
Browns Ferry	Alabama	34	42	15	87	7	7
Brunswick	North Carolina	33	57	30	78	0	38
Calvert Cliffs	Maryland	38	26	5	76	26	31
Donald C. Cook	Michigan	41	58	34	86	33	59
Cooper	Nebraska	40	21	43	95	38	28
Crystal River	Florida	28	57	26	82	41	56
Davis-Besse	Ohio	41	35	50	83	5	11
Diablo Canyon	California	35	12	42	120	51	16
Dresden	Illinois	41	23	23	88	16	16
Duane Arnold	Iowa	42	6	2	91	46	38
Joseph M. Farley	Alabama	31	13	22	85	6	45
Fitzpatrick (see Nine Mile Point)	New York	43	31	26	76	23	54
Ft. Calhoun	Nebraska	41	31	15	96	4	36
Fort St. Vrain	Colorado	40	14	41	104	52	28
Ginna	New York	43	16	40	77	18	32
Haddam Neck	Connecticut	41	28	55	72	29	57
Hatch	Georgia	31	56	3	82	20	40
Indian Point	New York	41	16	17	73	57	9
Kewaunee	Wisconsin	44	20	35	87	32	10
LaCrosse	Wisconsin	43	33	30	91	13	50
LaSalle	Illinois	41	14	38	88	40	15
Maine Yankee	Maine	43	57	2	69	41	46
McGuire	North Carolina	35	25	56	80	56	54
Millstone	Connecticut	41	18	31	72	10	5
Monticello	Minnesota	45	20	0	93	50	54
Nine Mile Point*	New York	43	31	20	76	24	36
North Anna	Virginia	38	3	39	77	47	26
Oconee	South Carolina	34	47	30	82	53	55
Oyster Creek	New Jersey	39	48	51	74	12	23
Palisades	Michigan	42	19	20	86	18	55
Peach Bottom	Pennsylvania	39	45	32	76	16	9
Pilgrim	Massachusetts	41	56	40	70	34	46
Point Beach	Wisconsin	44	16	51	87	32	10
Prairie Island	Minnesota	44	37	19	92	37	59
Quad Cities	Illinois	41	43	34	90	18	36
Rancho Seco	California	38	20	40	121	7	12
H. B. Robinson	South Carolina	34	24	9	80	9	31
St. Lucie	Florida	27	20	55	80	14	47
Salem/Hope Creek	New Jersey	39	27	46	75	32	9
San Onofre	California	33	22	13	117	33	25
Sequoyah	Tennessee	35	13	24	85	5	16
Surry	Virginia	37	9	56	76	41	54
Three Mile Island	Pennsylvania	40	9	11	76	43	30
Trojan	Oregon	46	2	27	122	53	4
Turkey Point	Florida	25	26	6	80	19	53
Vermont Yankee	Vermont	42	46	49	72	30	57
Yankee Rowe	Massachusetts	42	43	41	72	55	44
Zimmer	Ohio	38	51	57	84	13	44
Zion	Illinois	42	26	44	87	48	8

*Fitzpatrick Nuclear Power Plant is located 1000 meters east of Nine Mile Point; for the purpose of this report, Nine Mile Point is sited.

ARKANSAS

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
N	624			0.5		1.5
S	31			0.5		1.5
WITHIN 5 MILES						
NE	1288			1.0		2.0
SE	5623			1.0		3.0
SW	421			1.0		3.0
NW	1023			1.0		2.0
WITHIN 10 MILES						
NE	3956			2.0		3.0
SE	19858			2.0		3.0
SW	1365			2.0		3.0
NW	2163			2.0		3.0

FOOTNOTES: _____

_____

_____

_____

CONFIDENCE OF ESTIMATES: POOR

_____

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

93°15′

35°15′ 35°15′

93°15′

ARKANSAS POWER PLANT ARKANSAS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

BEAVER VALLEY
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
WITHIN 5 MILES						
ALL	17304				3.8	4.5
WITHIN 10 MILES						
ALL	155594				5.8	7.3

FOOTNOTES: _____

_____

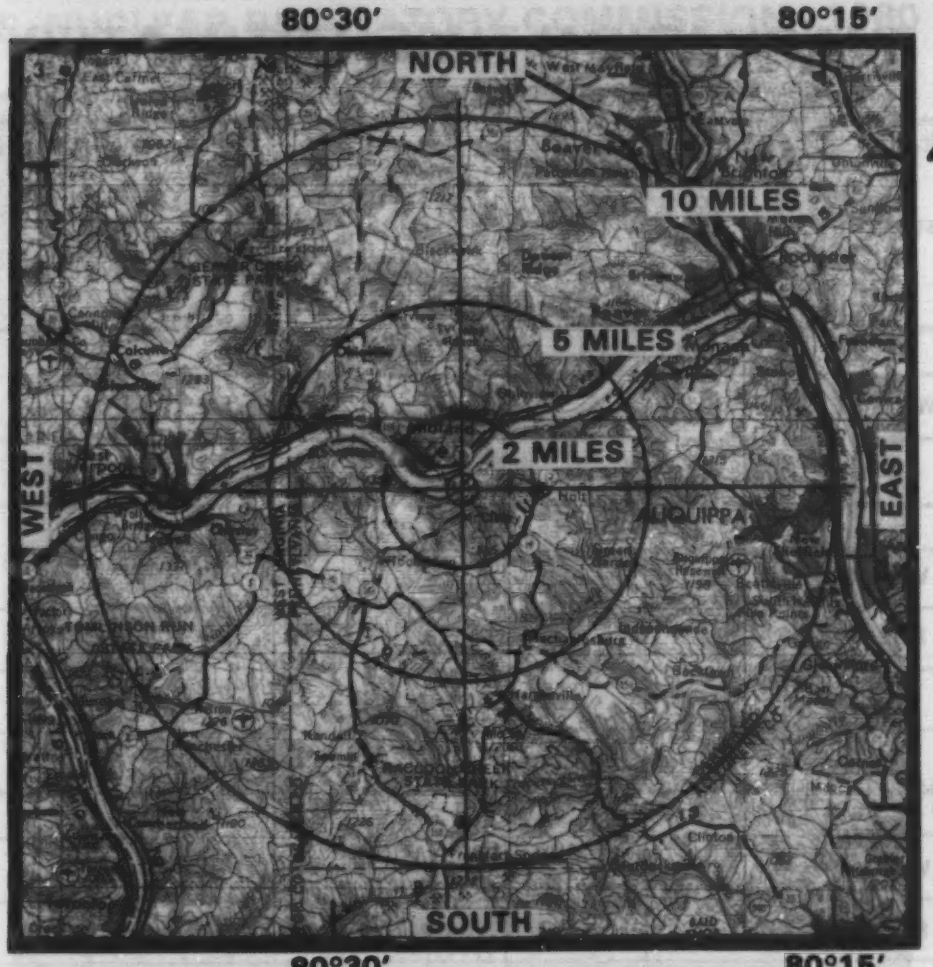
_____

_____

CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



BEAVER VALLEY POWER STATION PENNSYLVANIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

BIG ROCK POINT

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
WSW-NE			0.2	0.2		
WITHIN 5 MILES						
WSW-S			1.4	1.3		
SSE-NE			0.6	0.4		
WITHIN 10 MILES						
WSW-S			1.6	1.3		
SSE-NE			1.2	0.5		

FOOTNOTES: _____

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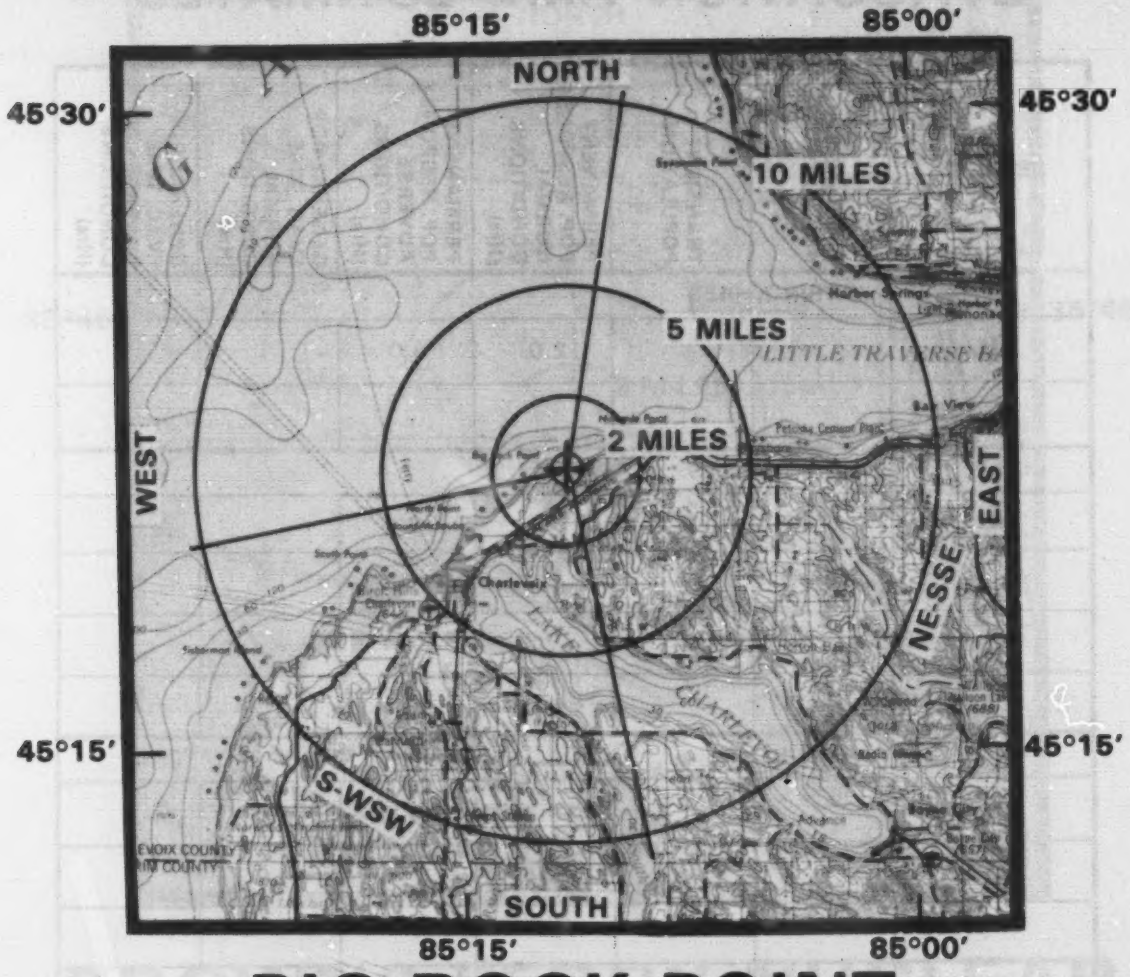
CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



BIG ROCK POINT NUCLEAR PLANT MICHIGAN

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

BROWNS FERRY

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
ALL			2.0	4.0		
WITHIN 5 MILES						
ALL			6.0	10.0		
WITHIN 10 MILES						
ALL			10.0	14.0	1.5	

FOOTNOTES: _____

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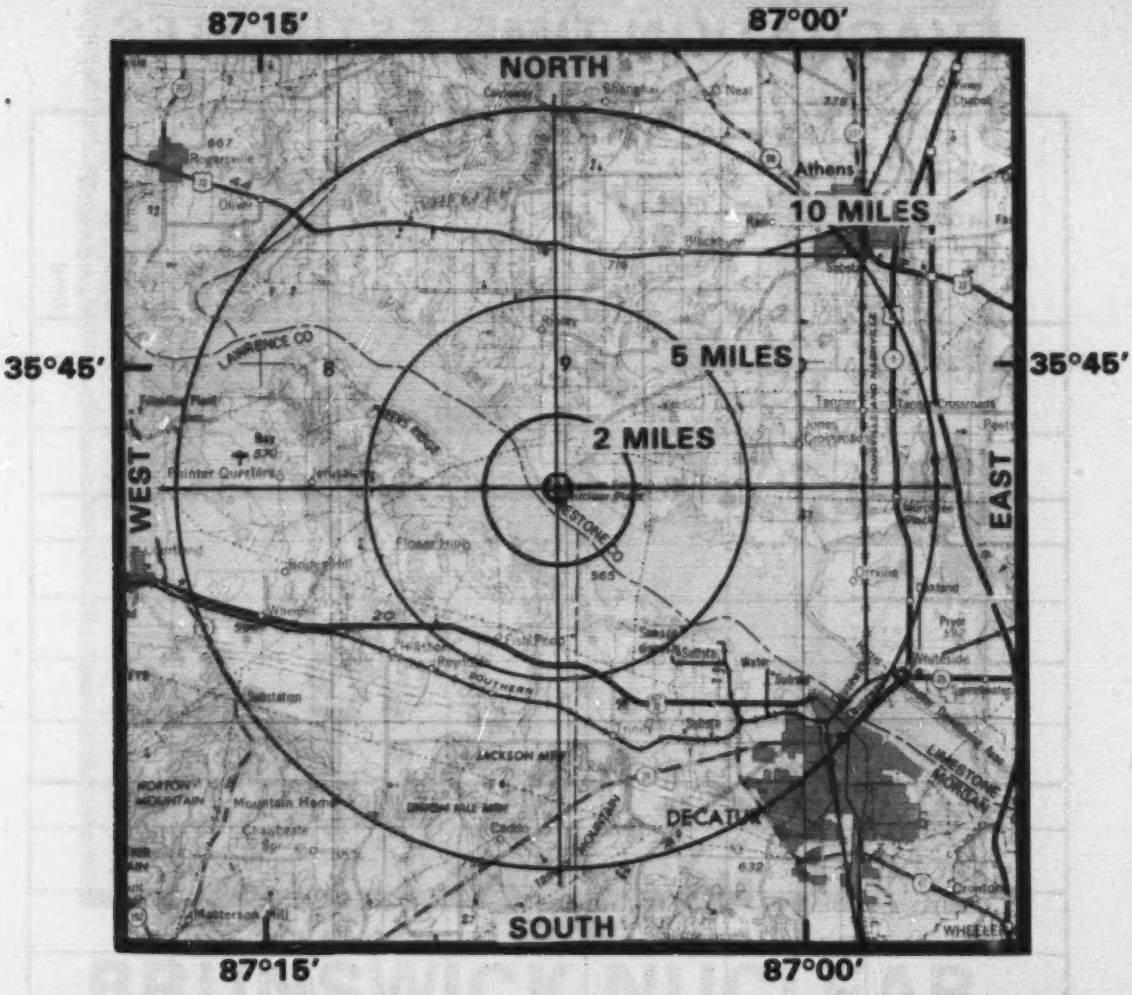
CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



BROWNS FERRY NUCLEAR POWER PLANT ALABAMA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

BRUNSWICK*

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
WITHIN 5 MILES						
WITHIN 10 MILES						

FOOTNOTES: _____

_____

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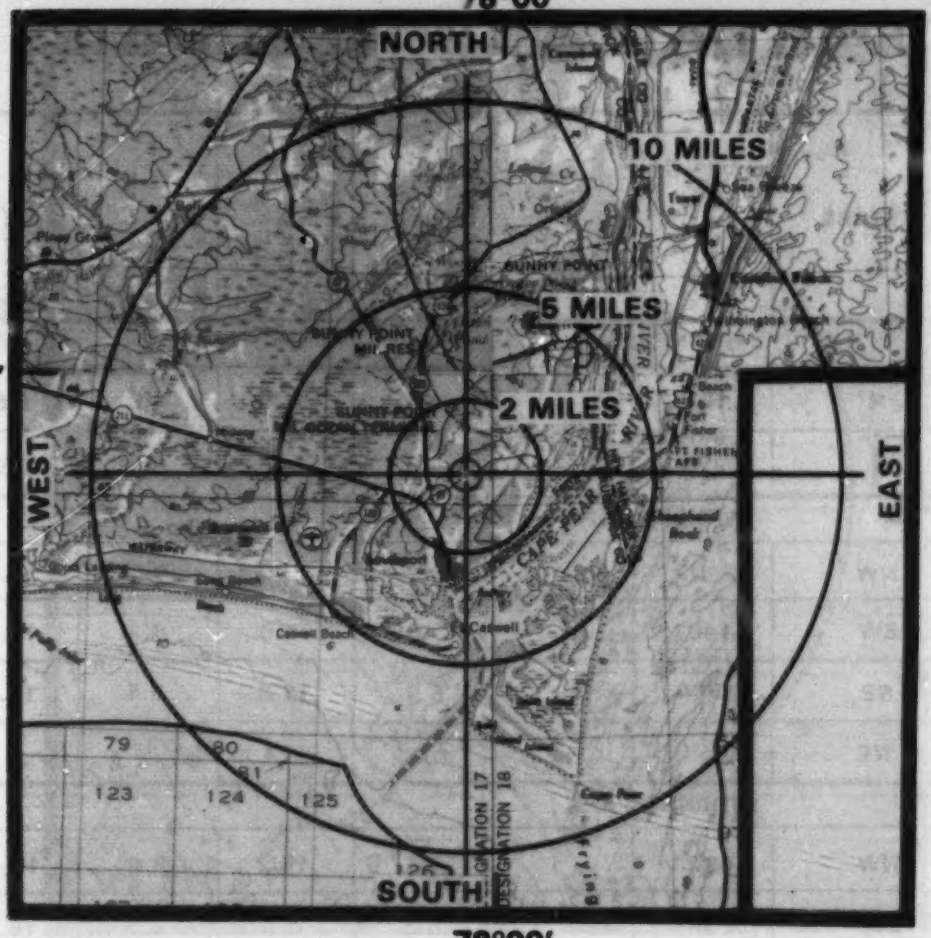
CONFIDENCE OF ESTIMATES: *NO RESPONSE PROVIDED FROM LICENSEE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

78°00'



34°00'

34°00'

78°00'

BRUNSWICK NUCLEAR POWER PLANT NORTH CAROLINA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

CALVERT CLIFFS

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
N	137		4.6	9.1	4.8	9.6
S	773		4.8	9.5	5.0	10.0
WITHIN 5 MILES						
NW	2192		6.1	12.0	6.6	13.0
SW	1431		5.8	11.6	6.3	12.6
SE	934		5.9	11.8	6.4	12.8
NE	0					
WITHIN 10 MILES						
NW	4903		7.6	15.2	8.6	17.2
SW	6363		8.1	16.2	9.1	18.3
SE	10260		8.1	16.2	9.1	18.3
NE	601		7.6	15.2	8.6	17.2

FOOTNOTES: _____

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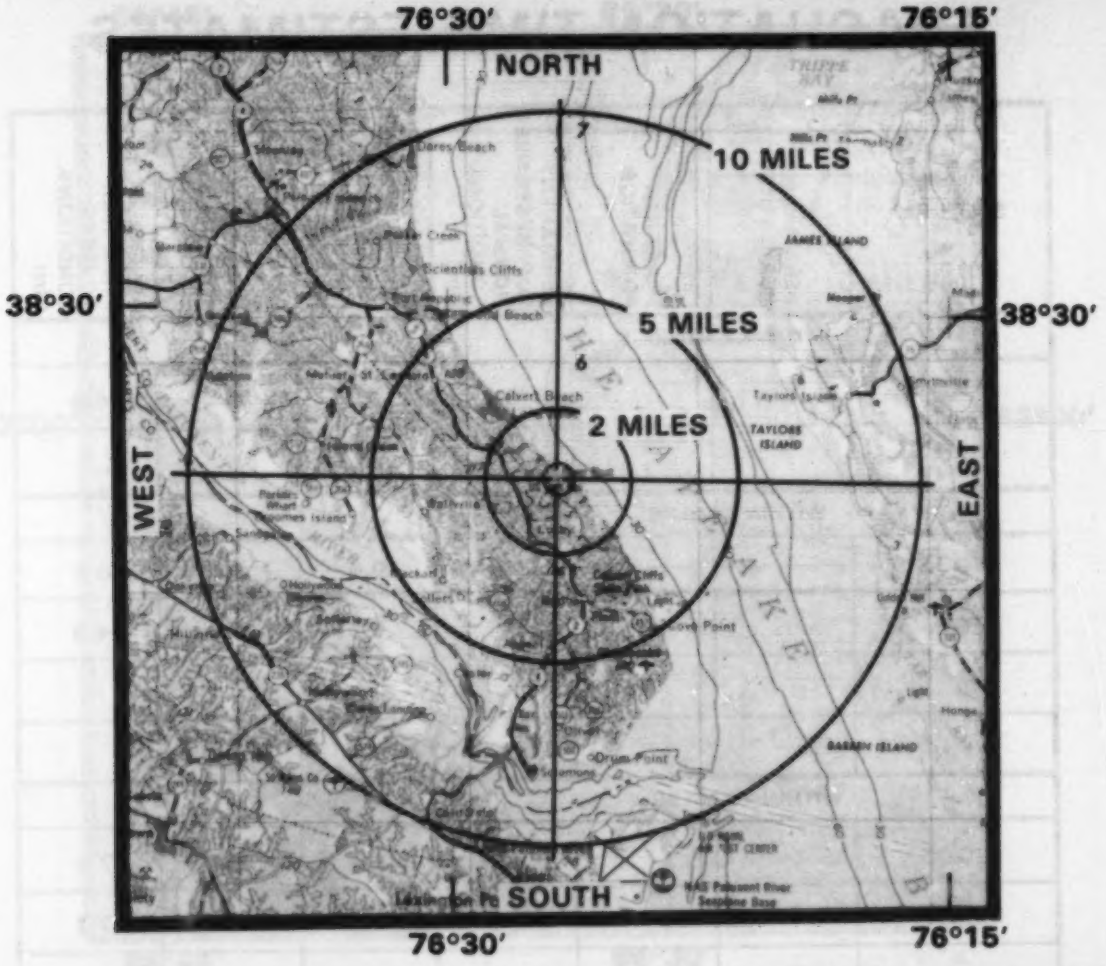
CONFIDENCE OF ESTIMATES: POOR _____

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



CALVERT CLIFFS NUCLEAR POWER STATION MARYLAND

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

DONALD C. COOK

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
B-J			0.3	0.3	4.1	4.5
WITHIN 5 MILES						
BCDE			0.3	0.5	3.3	5.8
FGHJ			0.3	0.5	3.0	4.3
WITHIN 10 MILES						
BCDE			0.6	1.3	5.9	7.6
FGHJ			0.3	0.8	5.7	7.1

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

DONALD C. COOK POWER PLANT MICHIGAN

Scale 1:250,000

CONTOUR INTERVAL 50 FEET

COOPER

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
A-G	5					
H-R	26		0.1			
WITHIN 5 MILES						
A-D	308					
E-G	167					
H-M	363		0.5			
N-R	243		0.5			
WITHIN 10 MILES						
A-D	3045					
E-G	455					
H-M	1122		0.9			
N-R	1940		1.1			

FOOTNOTES: _____

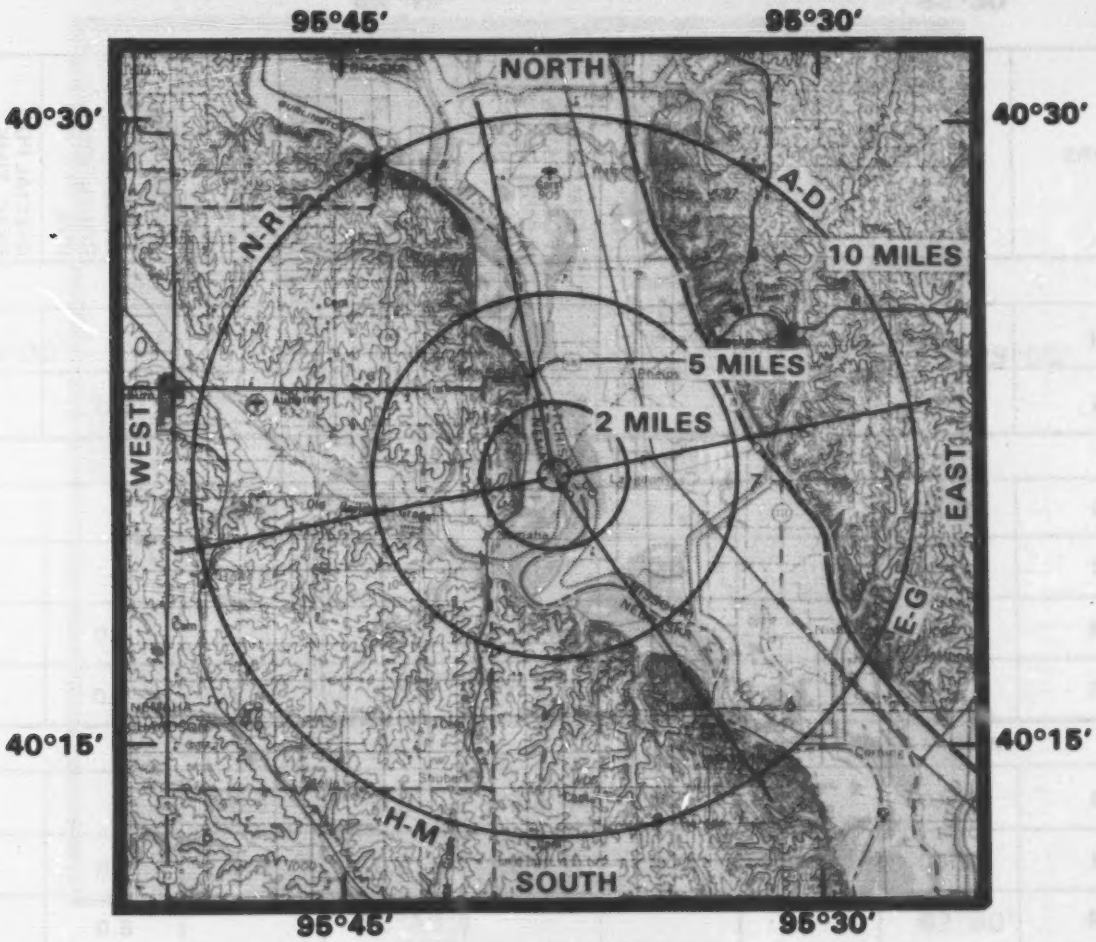
_____

_____

CONFIDENCE OF ESTIMATES: ADEQUATE, TIME ESTIMATE PROVIDED FOR NEBRASKA SIDE ONLY

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



COOPER NUCLEAR STATION NEBRASKA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

CRYSTAL RIVER
EVACUATION TIME ESTIMATES

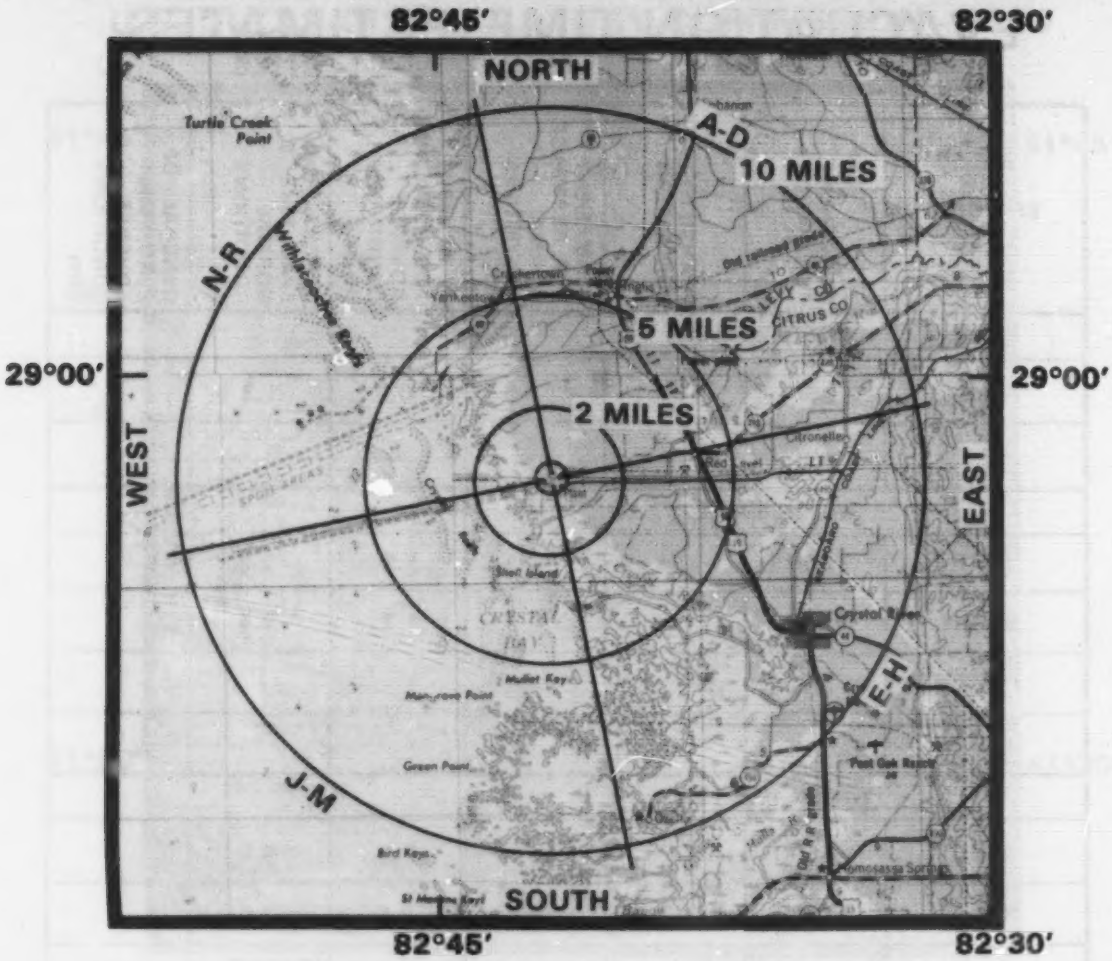
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
A-H	0							
J-R	0						1.0	2.0
WITHIN 5 MILES								
A-D	1522		2.5	3.5	2.8	3.8		
E-H	100		0.8	1.8	1.0	2.0		
J-M	0						4.0	6.0
N-R	60		1.0	2.0	1.3	2.3	4.0	6.0
WITHIN 10 MILES								
A-D	2940		2.8	5.8	3.0	6.0		
E-H	9000		2.8	5.8	3.0	6.0	1.8	3.0
J-M	0						6.0	8.0
N-R	60		1.0	2.0	1.3	2.3	6.0	8.0

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



CRYSTAL RIVER POWER PLANT FLORIDA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

DAVIS-BESSE
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
180°	800			0.7	1.3	
WITHIN 5 MILES						
LEFT	1600			1.2	2.3	
RIGHT	1800			1.3	2.5	
WITHIN 10 MILES						
LEFT	6600			2.0	4.0	
RIGHT	11800			3.5	7.0	

FOOTNOTES: _____

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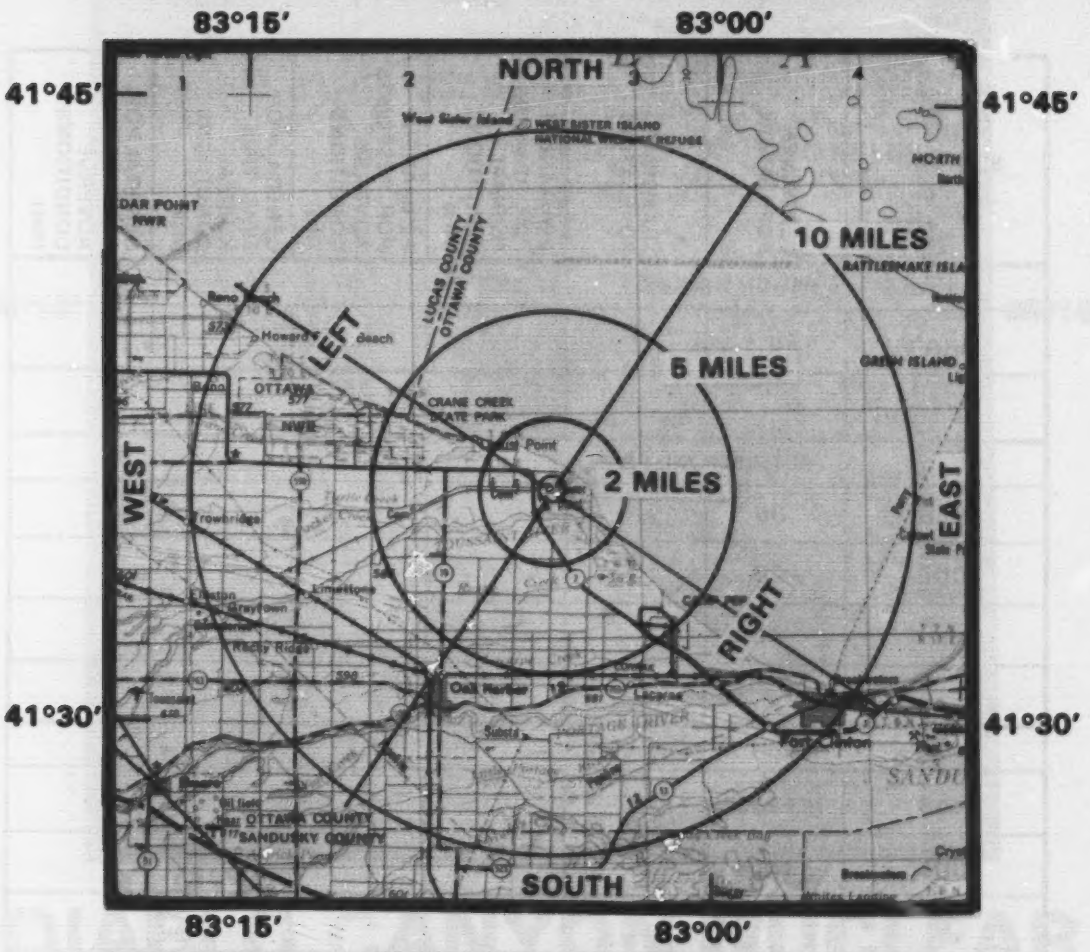
CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



DAVIS-BESSE NUCLEAR POWER STATION

OHIO

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

DIABLO CANYON
EVACUATION TIME ESTIMATES

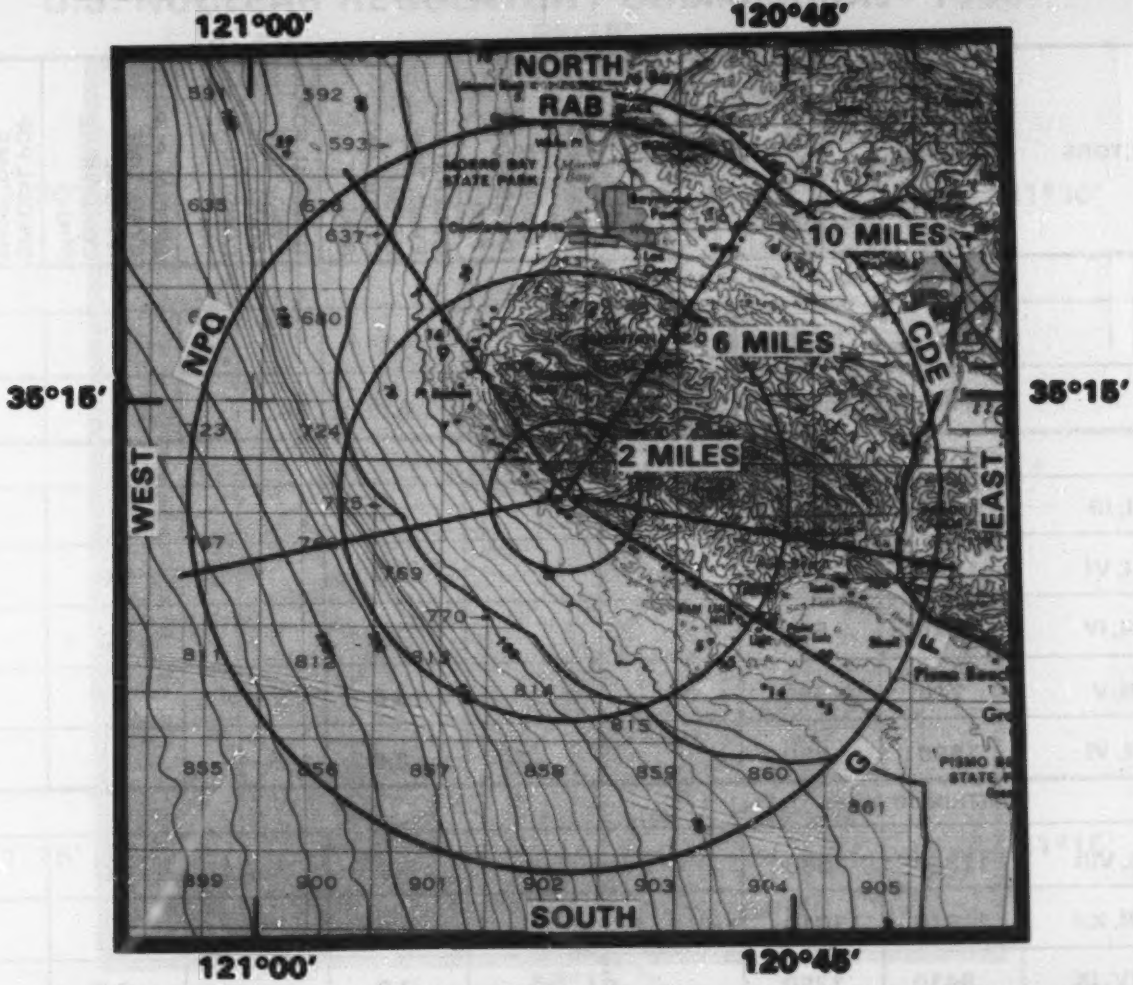
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
QRA-F	5					
WITHIN 6 MILES *						
RAB	35					
CDE	28					
F	0					
WITHIN 10 MILES						
RAB	11763					
CDE	4965					
F	917					
ALL	63489				4.3	5.0

FOOTNOTES: * THIS STUDY ELECTED TO USE A 6-MILE RADIUS RATHER THAN A 5-MILE RADIUS AND SMALLER SECTORS TO BETTER REFLECT NATURAL BOUNDARIES

CONFIDENCE OF ESTIMATES: EXCELLENT

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



DIABLO CANYON NUCLEAR POWER PLANT CALIFORNIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

DRESDEN
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
I	80	830			4.0			
II	580	980			6.0			
WITHIN 5 MILES								
I, III	4280	1280			5.0			
I, VI	760	1010			8.0		1.0	
II, IV	1840	980			7.0		1.0	
II, V	710	980			8.0			
II, VI	1690	980			8.0			
WITHIN 10 MILES								
I, III, VIII	12340	1580			6.0		1.0	
I, VII, XII	10840	1010			6.0		2.0	
II, IV, IX	9410	1280			7.0		3.0	
II, V, X	3400	980			8.0		1.0	
II, VI, XI	6870	1050			8.0		1.0	

FOOTNOTES:

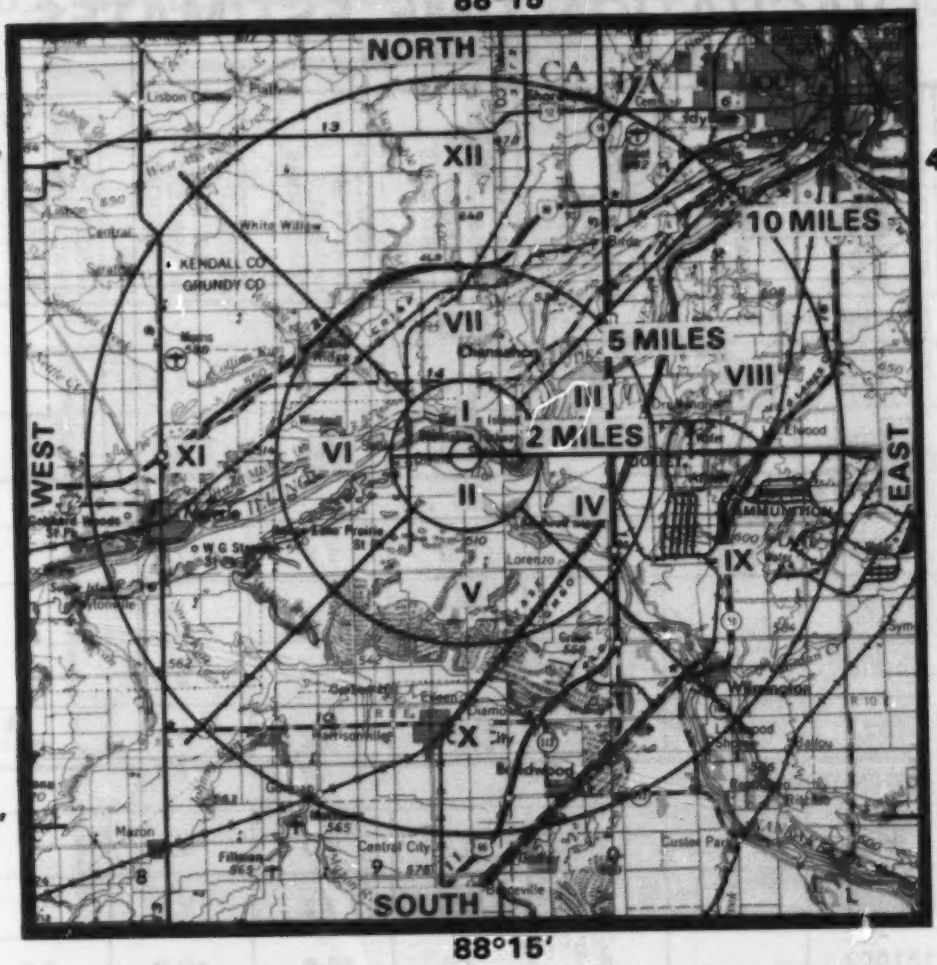
CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

88°15′

41°30′



41°30′

41°15′

41°15′

88°15′

DRESDEN NUCLEAR POWER STATION ILLINOIS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOUR AT 25 FOOT INTERVALS

DUANE ARNOLD
EVACUATION TIME ESTIMATES

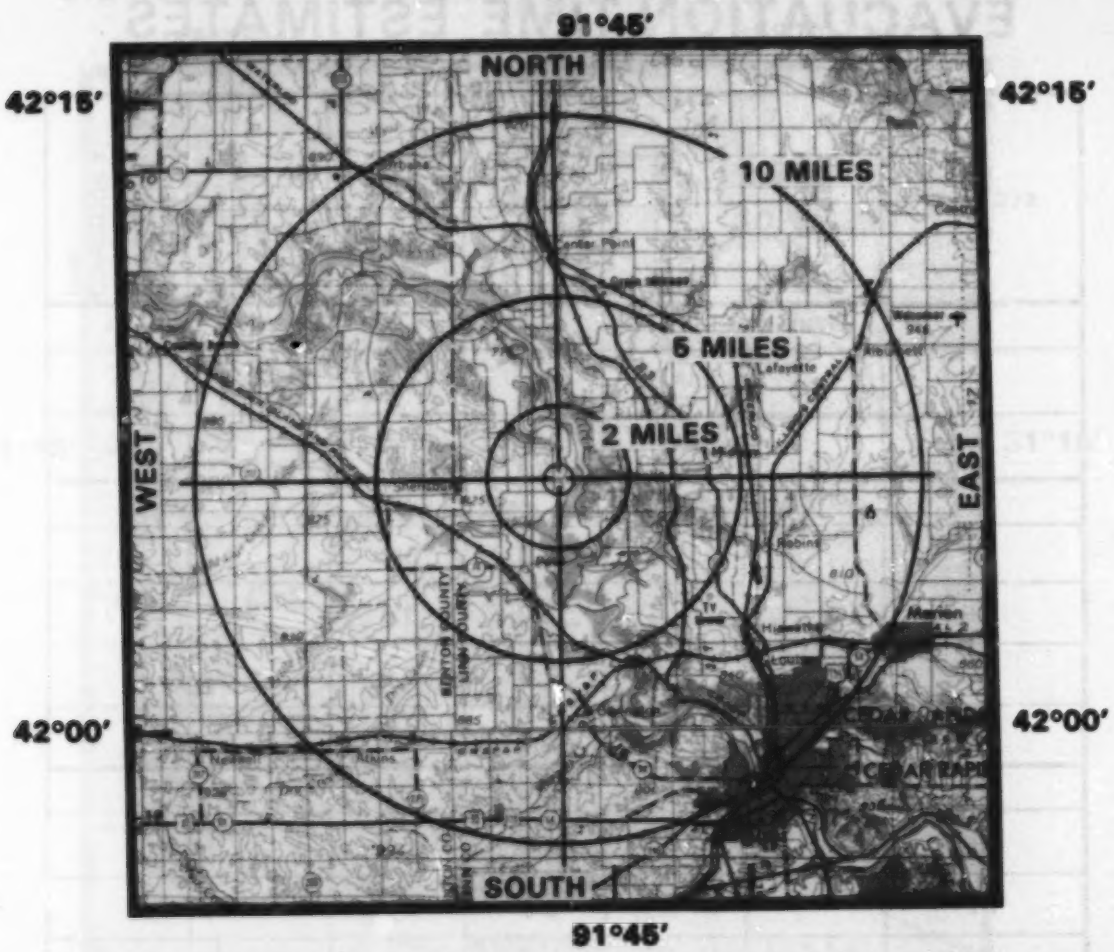
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
N	129		0.8	1.8	0.9	1.9		
S	198		0.7	1.6	0.9	1.8		
WITHIN 5 MILES								
NW	522		1.0	2.0	1.5	2.5		
NE	777		0.9	1.8	1.6	2.5		
SE	1002		1.2	2.1	2.0	2.9		
SW	1323		1.0	1.9	2.2	3.1		
WITHIN 10 MILES								
NW	4473		2.3	3.2	5.0	5.9		
NE	2649		1.4	2.3	3.2	4.1		
SE	151002		6.7	7.0	10.6	10.9	2.8	3.2
SW	3525		1.5	2.4	4.0	4.9		

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



DUANE ARNOLD NUCLEAR POWER STATION IOWA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

JOSEPH M. FARLEY
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
E			0.8	1.0		
W			0.8	1.0		
WITHIN 5 MILES						
NE			2.0	3.0		
SE			2.0	3.0		
SW			2.0	3.0		
NW			2.0	3.0		
WITHIN 10 MILES						
NE			4.0	6.0		
SE			6.0	8.0		
SW			6.0	8.0		
NW			6.0	8.0		

FOOTNOTES: _____

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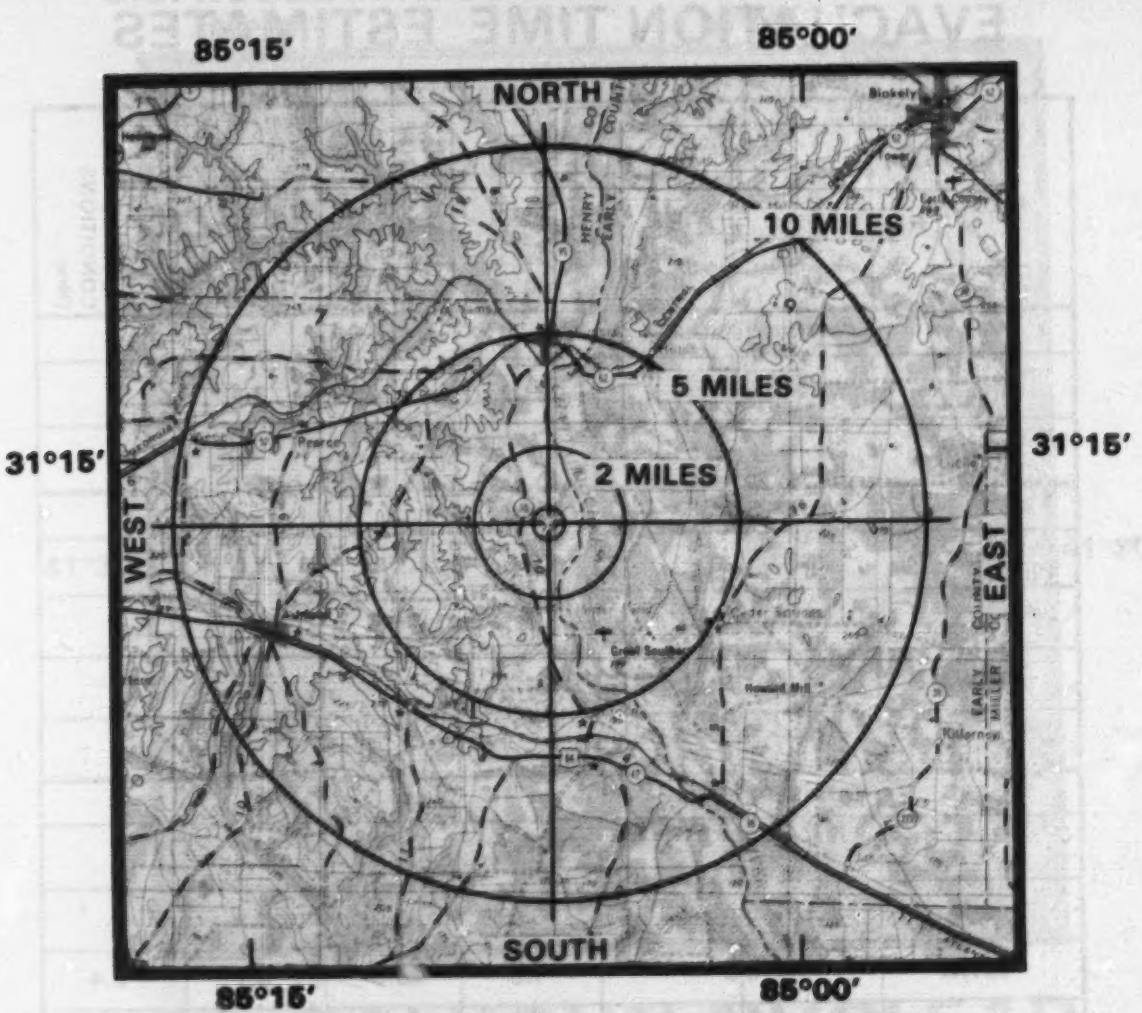
CONFIDENCE OF ESTIMATES: POOR _____

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



JOSEPH M. FARLEY NUCLEAR PLANT ALABAMA

Scale 1:250,000

0 5 10 15 20 Statute Miles

0 5 10 15 20 25 30 Kilometers

0 5 10 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

FT. CALHOUN

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
G-R	187		3.0	0.2	3.4	
IOWA						
WITHIN 5 MILES						
N-R	7382		3.0	0.7	4.0	
G-M	892		3.0	0.3	3.6	
IOWA						
WITHIN 10 MILES						
N-R	8317		3.0	0.9	4.2	
G-M	2374		3.0	0.7	3.9	
IOWA			1.5	0.3	2.1	2.4

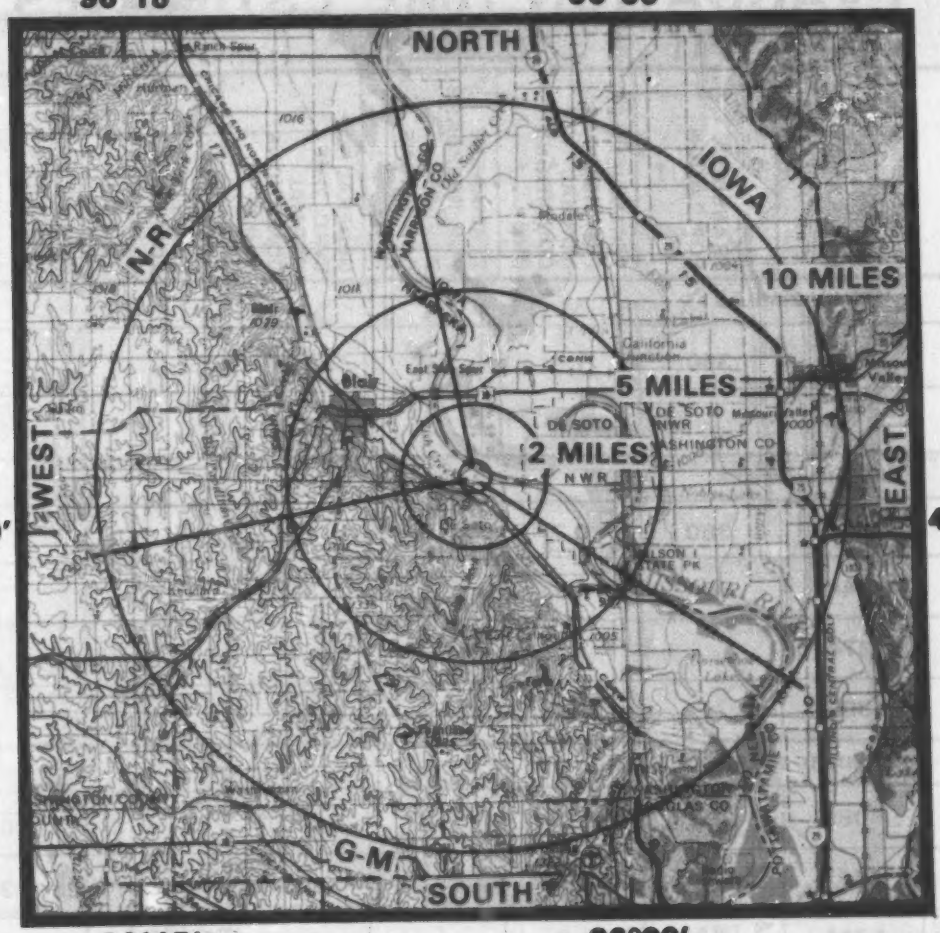
FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

96°15′ 96°00′



41°30′ 41°30′

96°15′ 96°00′

FT. CALHOUN NUCLEAR POWER PLANT NEBRASKA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

FORT ST. VRAIN
EVACUATION TIME ESTIMATES

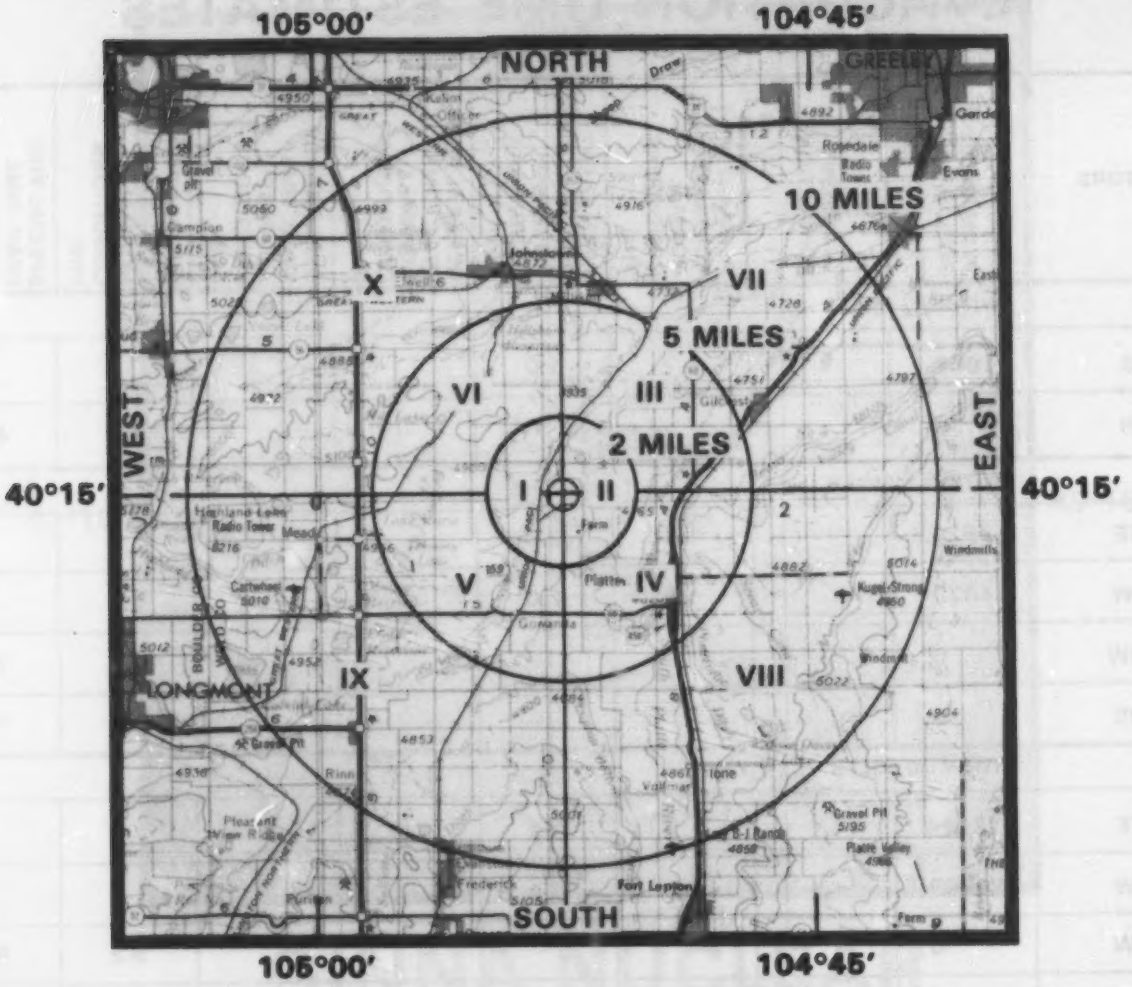
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
I	140	350	1.6		4.0			
II	76		1.1		2.0			
WITHIN 5 MILES								
I & V	554	350	0.7		7.0			
I & VI	744	350	4.7		8.0			
II & III	374		2.2		5.0			
II & IV	1802		5.3		8.0			
WITHIN 10 MILES								
I, V, IX	4099	350	3.1		9.0		1.0	
I, VI, X	5121	350	4.6		9.0		0.3	
II, III, VII	1736		4.0		9.0		0.3	
II, VI, VIII	2244		5.6		10.0		0.3	

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



FORT ST. VRAIN NUCLEAR STATION COLORADO

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

GINNA

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
S	867		0.7	1.0				
N	0						4.5	4.8
WITHIN 5 MILES								
SE	4820		1.5	2.0				
SW	4820		1.5	2.0			2.0	
NW	0						6.5	7.0
NE	0						6.5	7.0
WITHIN 10 MILES								
SE	12064		1.9	3.9				
SW	36803		5.2	6.4				
NW	0						9.2	9.9
NE	0						9.2	9.9

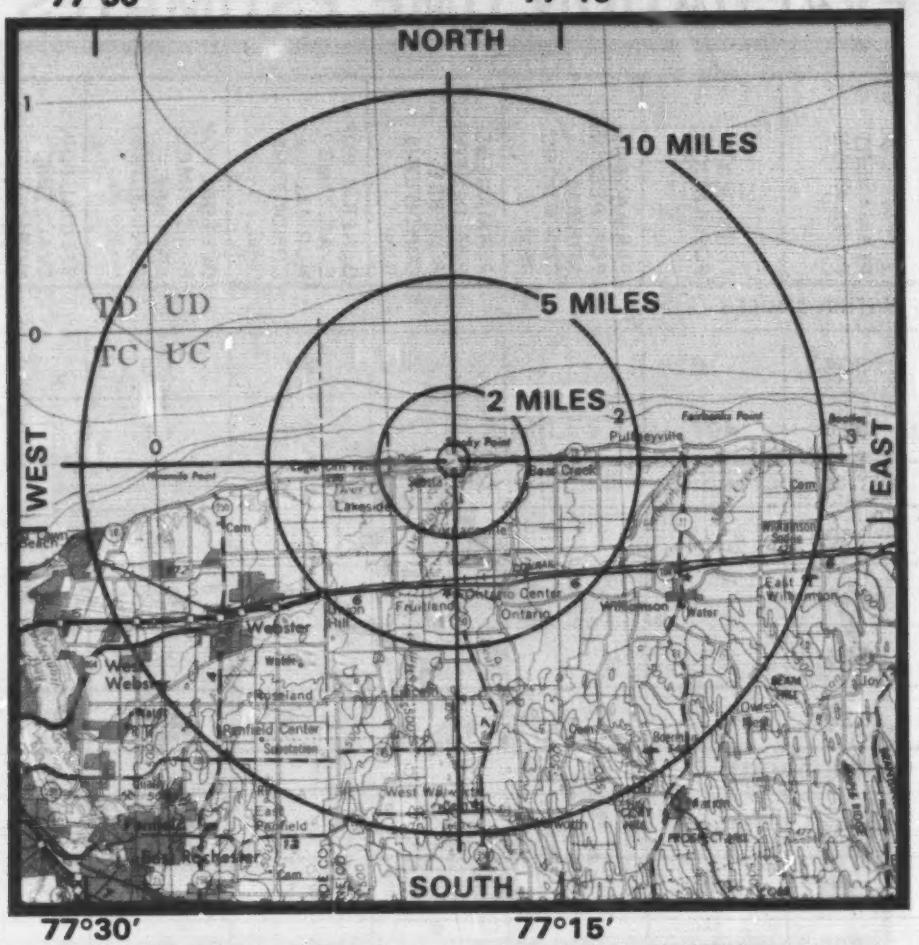
FOOTNOTES: ALL NORTH SECTORS ARE LAKE ONTARIO, AND TIME ESTIMATES FOR LAKE SECTIONS ARE FOR EVACUATING BOATERS. EVACUATION TIME SHOWN UNDER SPECIAL POPULATION.

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

77°30′ 77°15′



43°15′ 43°15′

77°30′ 77°15′

GINNA NUCLEAR POWER PLANT NEW YORK

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

HADDAM NECK
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
AB	1304	0			1.1	1.3		
CD	1616	407			1.2	1.6		
WITHIN 5 MILES								
A	3540	4317			3.0	3.5		
B	4025	0			2.8	3.2		
C	2636	0			2.1	2.3		
D	2635	1872			1.6	1.8		
WITHIN 10 MILES								
A	38316	5992			8.0	10.0	4.0	5.0
B	7982	7503			8.1	8.8		
C	15890	10866			8.3	5.9		
D	10326	5054			4.7	5.1		

FOOTNOTES:

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

72°30'

41°30'

41°30'

72°30'

HADDAM NECK NUCLEAR POWER STATION CONNECTICUT

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

HATCH

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
E-M	69		0.5	1.5	1.0	2.0
A-D, N-R	266		0.5	0.5	1.0	1.0
WITHIN 5 MILES						
E-M	545		1.5	3.0	4.5	6.0
A-D, N-R	616		1.5	2.0	2.3	2.8
WITHIN 10 MILES						
E-M	2986		3.0	6.0	9.0	12.0
A-D, N-R	3412		6.0	7.5	10.0	11.5

FOOTNOTES: _____

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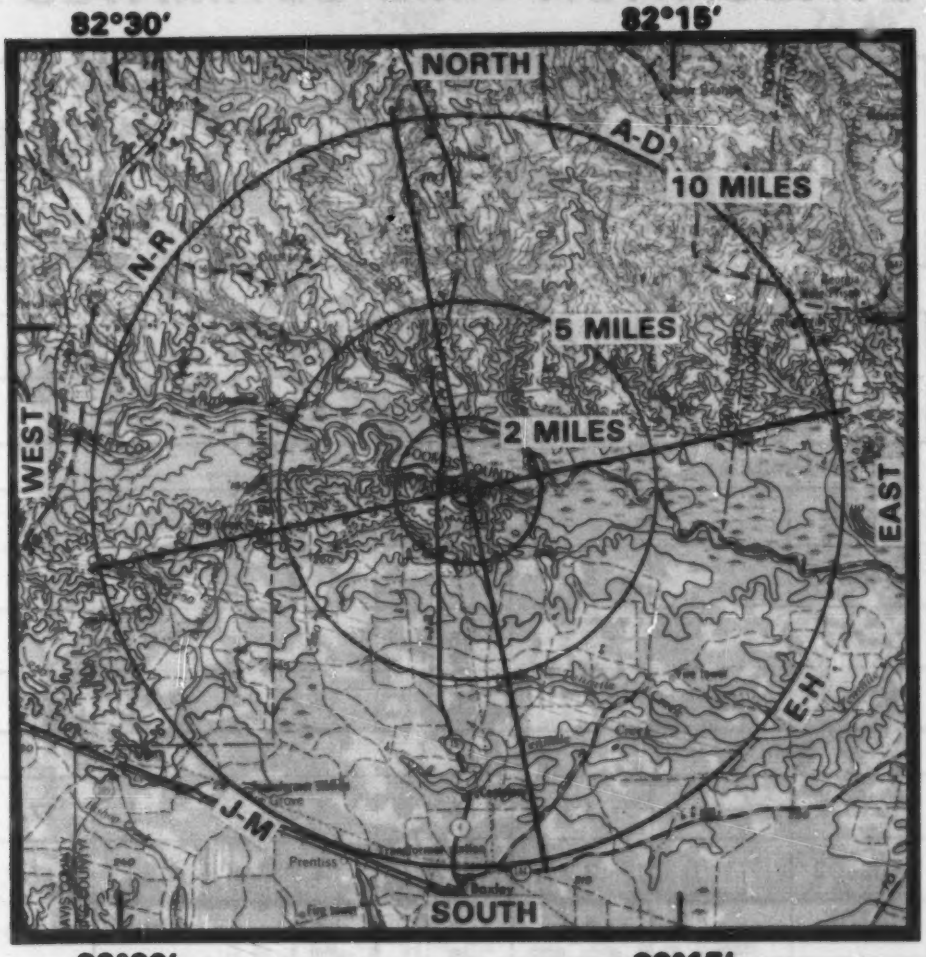
CONFIDENCE OF ESTIMATES: POOR _____

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



HATCH NUCLEAR POWER STATION GEORGIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 50 FEET

INDIAN POINT
EVACUATION TIME ESTIMATES

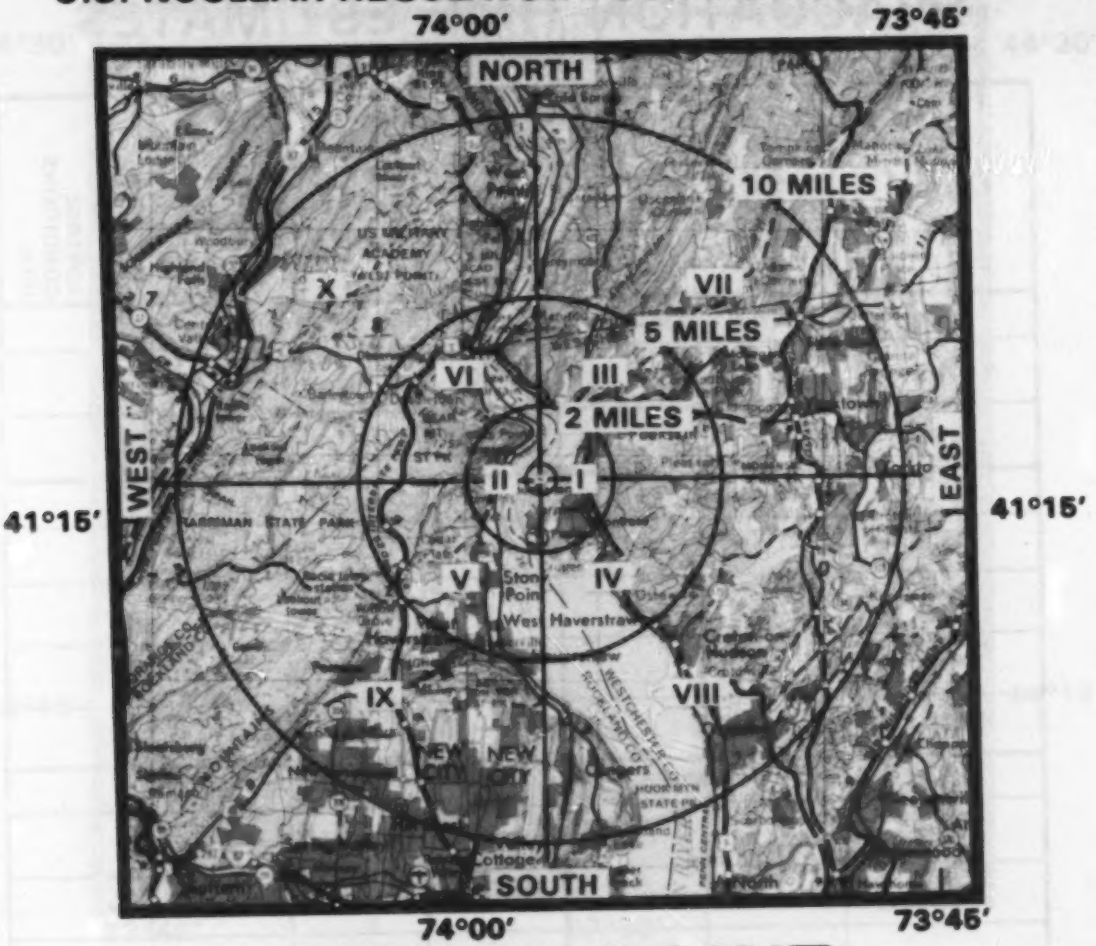
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
I	32112		3.3	5.5	4.3	6.5	7.2	10.2
II	12191		3.3	5.5	4.8	7.0	7.2	10.2
WITHIN 5 MILES								
I, III	48167		3.3	5.5	4.3	6.5	7.2	10.2
I, IV	44436		3.3	5.5	4.3	6.5	7.3	10.3
II, V	13229		3.3	5.5	4.8	7.0	7.2	10.2
II, VI	53410		3.7	5.8	5.2	7.3	7.2	10.2
WITHIN 10 MILES								
I, III, VII	101378		3.3	5.5	4.8	5.3	7.2	10.2
I, IV, VIII	100002		3.7	5.7	4.7	6.7	7.2	10.2
II, V, IX	32178		3.3	5.5	4.8	5.3	7.2	10.2
II, VI, X	127267		3.7	6.0	5.2	7.5	7.2	10.2

FOOTNOTES: TRANSIENTS CONSIDERED UNDER SPECIAL POPULATION CATEGORY IN THIS STUDY

CONFIDENCE OF ESTIMATES: EXCELLENT

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



INDIAN POINT STATION NEW YORK

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

KEWAUNEE

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
1-9			1.0		2.3	
WITHIN 5 MILES						
1-5			1.0		2.5	
6-9			1.0		2.5	
WITHIN 10 MILES						
1-5			1.0		4.0	
6-9			1.0		4.0	

FOOTNOTES: _____

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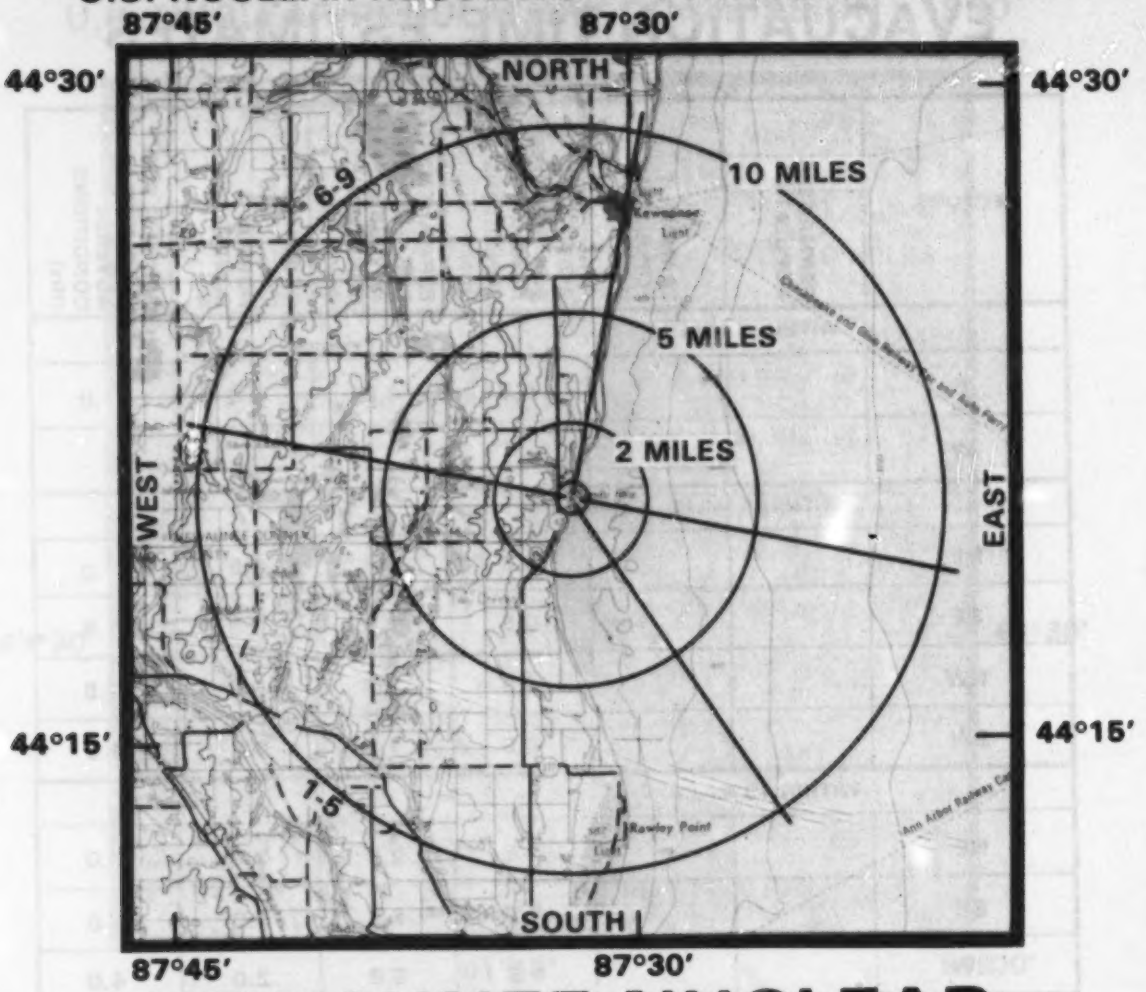
CONFIDENCE OF ESTIMATES: POOR _____

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



KEWAUNEE NUCLEAR POWER PLANT WISCONSIN

Scale 1:250,000

0 5 10 15 Statute Miles

0 5 10 15 20 25 Kilometers

0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

LaCROSSE
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
E			0.3	0.8	0.5	1.0
W						
WITHIN 5 MILES						
NE			0.3	0.8	0.5	1.0
SE			0.5	1.3	0.8	1.5
NW			0.5	1.3	0.8	1.5
SW			0.5	1.3	0.8	1.5
WITHIN 10 MILES						
NE			1.8	2.8	2.0	3.0
SE			1.8	3.8	2.0	4.0
NW			1.8	3.8	2.0	4.0
SW			1.8	3.8	2.0	4.0

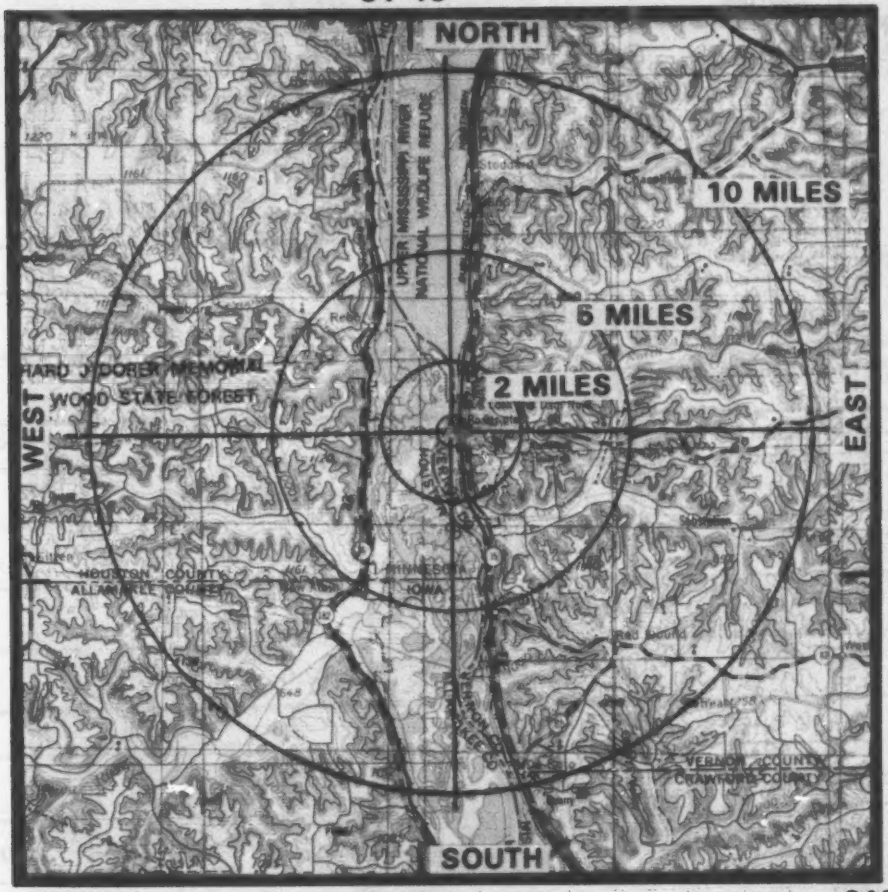
FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

91°15′ 91°00′



43°30′ 43°30′

91°15′ 91°00′

LaCROSSE NUCLEAR POWER STATION WISCONSIN

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

LaSALLE
EVACUATION TIME ESTIMATES

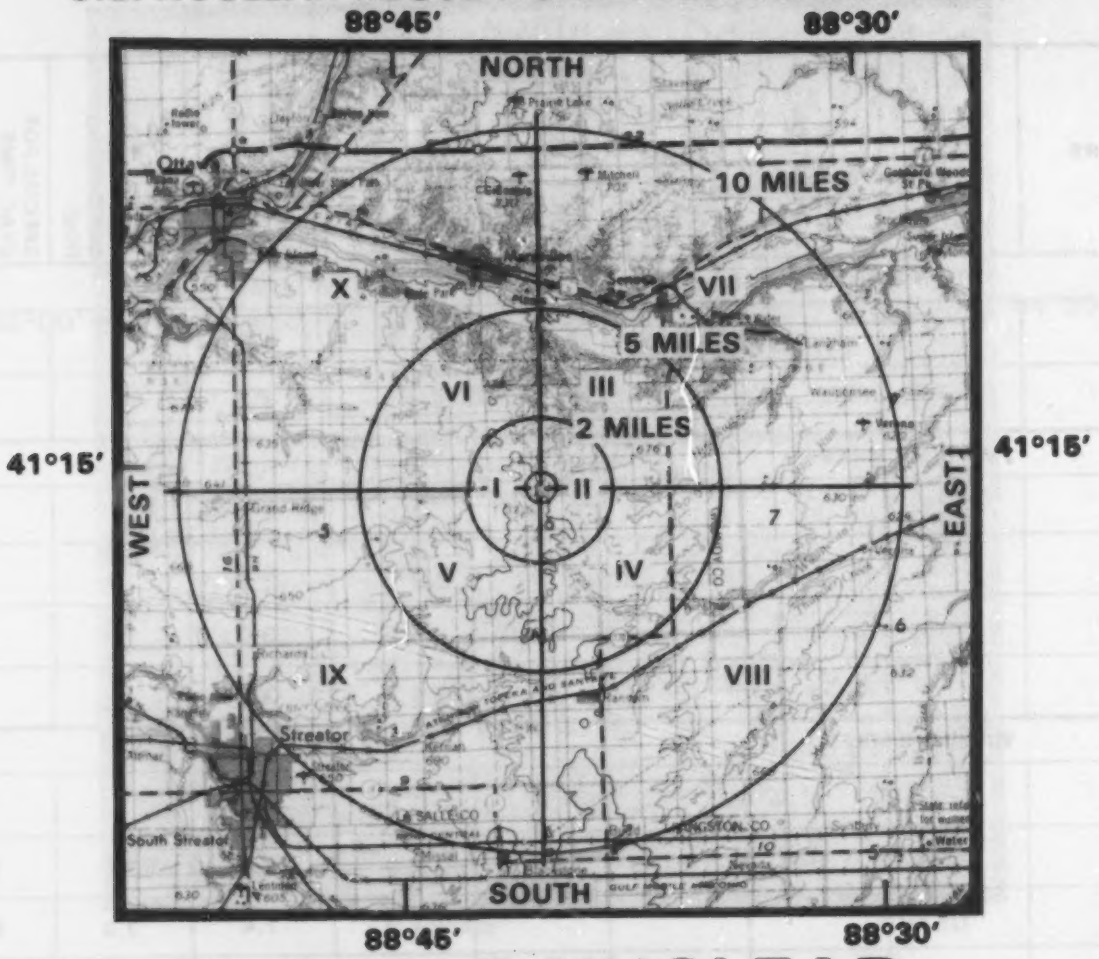
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
I	30	520			2.0			
II	50				1.0			
WITHIN 5 MILES								
I,V	505	520	0.1		2.0			
I, VI	245	520	0.2		2.0			
II, III	215		0.6		2.0			
II, IV	195		0.6		2.0			
WITHIN 10 MILES								
I, V, IX	4250	1275	6.4		9.0			
I, VI, X	7635	2070	4.9		8.0		2.0	
II, III, VII	1905	75	8.3		10.0			
II, IV, VIII	2870	230	7.8		10.0			

FOOTNOTES: TRANSIENTS INCLUDED IN PERMANENT POPULATION RESPONSE TIME

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



LaSALLE NUCLEAR POWER STATION ILLINOIS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOUR AT 25 FOOT INTERVALS

MAINE YANKEE
EVACUATION TIME ESTIMATES

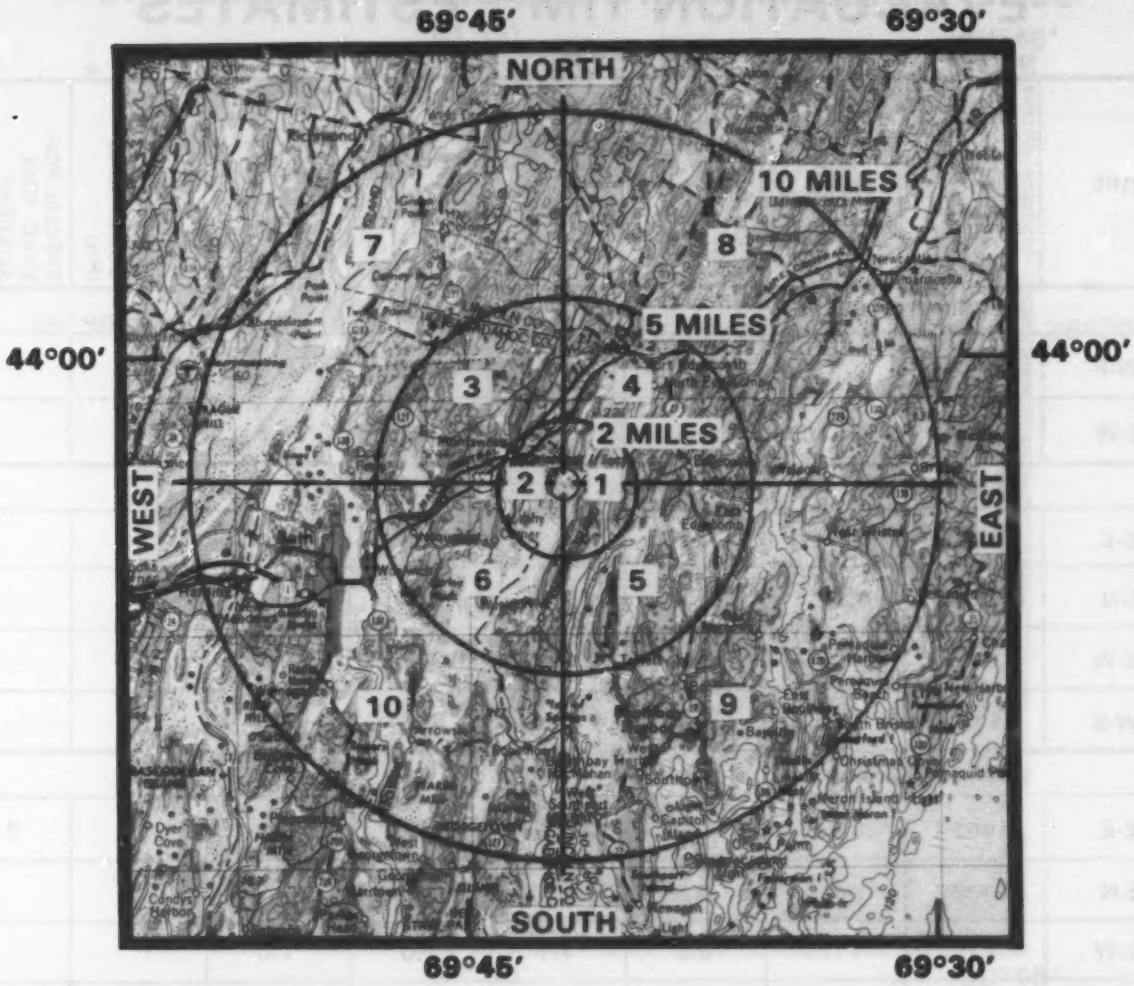
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
1					1.3	1.5		
2					1.3	1.4		
WITHIN 5 MILES								
3					1.5	1.8		
4					1.8	2.2		
5					1.5	3.0		
6					1.7	2.0		
WITHIN 10 MILES								
7					1.8	2.1		
8					2.0	2.4	7.2	1.3
9					2.9	7.4	3.6	8.0
10					3.8	4.5	4.5	5.2

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE. DATA NOT REPORTED IN DETAIL.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



MAINE YANKEE NUCLEAR POWER STATION MAINE

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

McGUIRE

EVACUATION TIME ESTIMATES

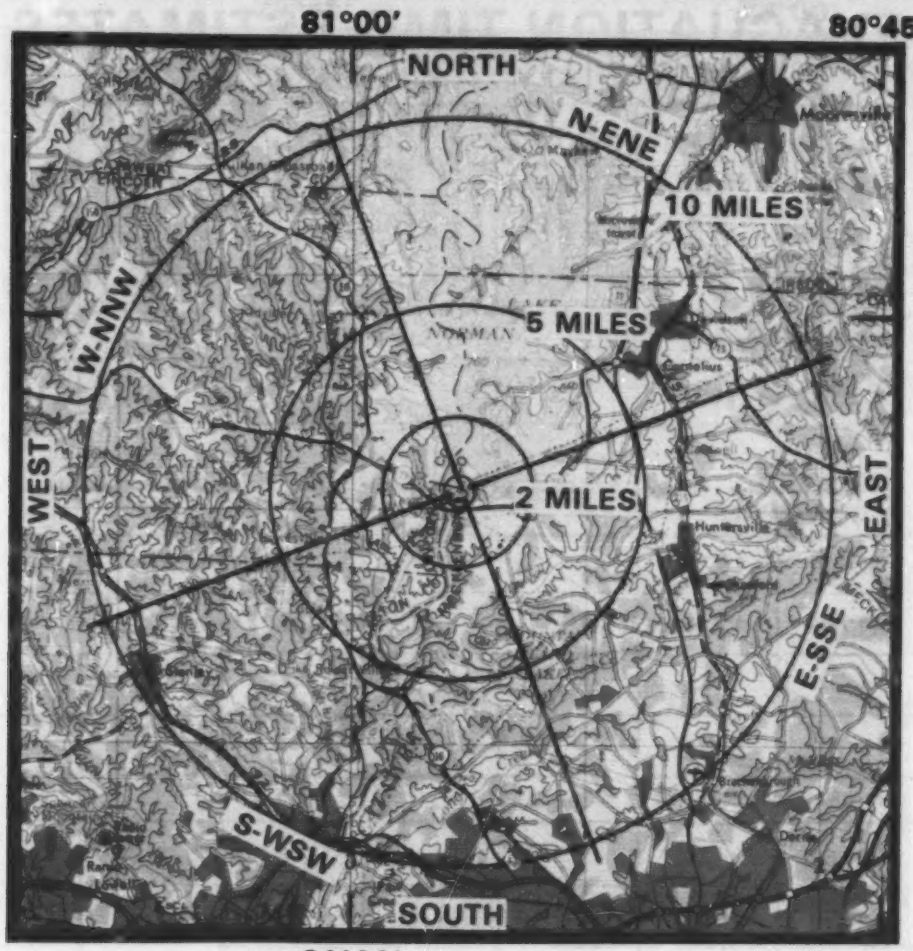
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
WSW-E	318	0	0.3	0.6	0.6	0.8		
ENE-W	240	3525	0.8	1.0	1.3	1.5		
WITHIN 5 MILES								
SSE-E	1731	0	0.5	0.8	0.8	1.0		
ENE-N	1374	12456	0.9	1.2	1.4	1.7		
NNW-W	1225	4336	0.9	1.2	1.4	1.7		
WSW-S	1147	0	0.5	0.8	0.8	1.0		
WITHIN 10 MILES								
SSE-E	19697	3738	0.8	1.1	1.0	1.3	1.8	2.3
ENE-N	13368	19618	0.8	1.1	1.0	1.3		
NNW-W	6496	7159	0.8	1.1	1.0	1.3		
WSW-S	25119	663	1.0	1.3	1.0	1.3		

FOOTNOTES: AN APPARENT ERROR EXISTS AS EVACUATION TIMES FOR 10-MILE RADIUS ARE LESS THAN THOSE FOR 5-MILE RADIUS

CONFIDENCE OF ESTIMATES: ADEQUATE. RESULTS NOT REPORTED IN CUMULATIVE FORMAT AS REQUESTED.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



McGUIRE NUCLEAR STATION NORTH CAROLINA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 100 FEET
TRANSVERSE MERCATOR PROJECTION

MILLSTONE
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
N	6087	1096			1.5	1.8		
WITHIN 5 MILES								
NW	12660	15721			3.8	4.4		
NE	41778	12242			6.8	8.1	5.0	
WITHIN 10 MILES								
NW	23669	24287			7.8	8.8		
NE	94956	56742			9.6	11.1		
FISCHERS I.	400	2100			9.0	10.4		
PLUM I.					0.8	0.9		

FOOTNOTES: _____

_____

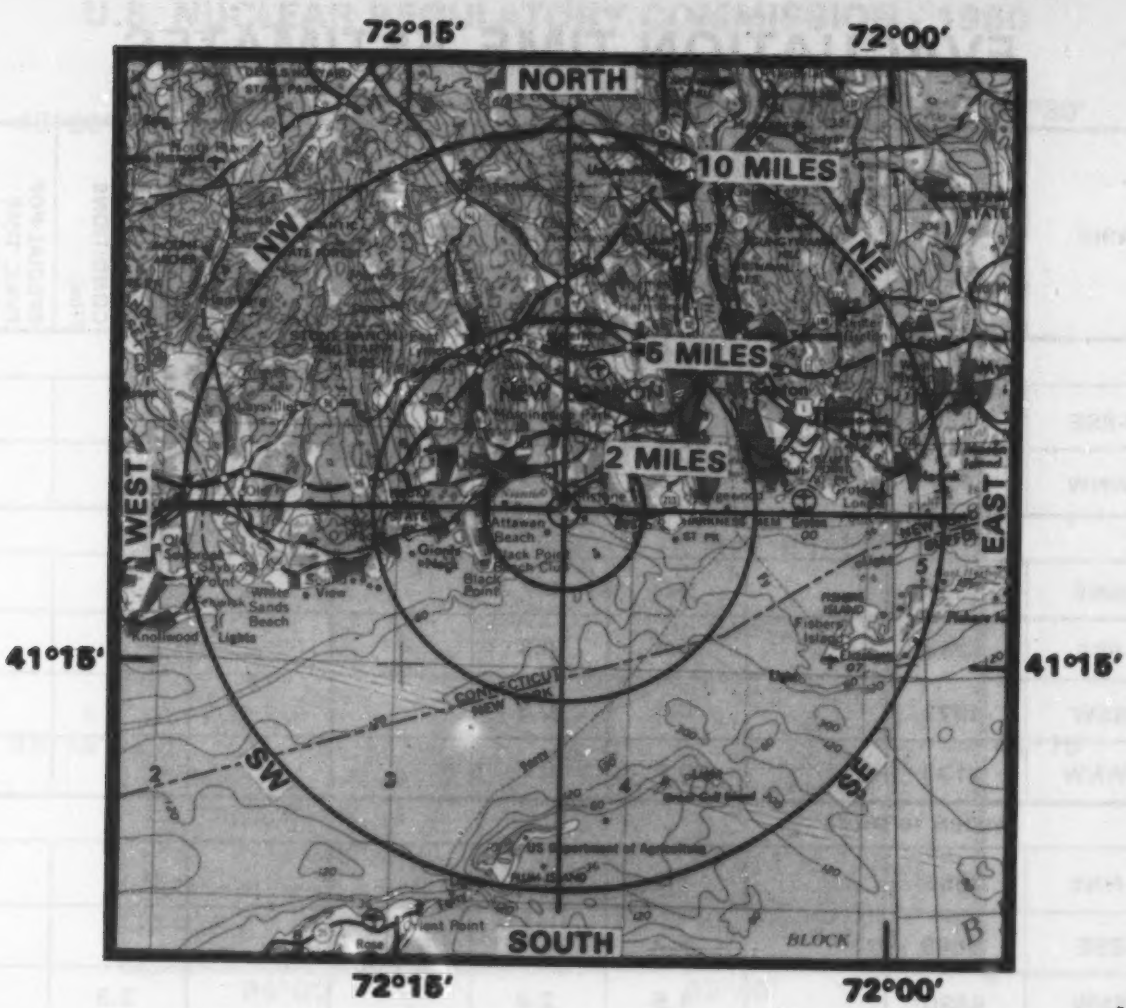
_____

_____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



MILLSTONE NUCLEAR POWER STATION CONNECTICUT

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET

MONTICELLO

EVACUATION TIME ESTIMATES

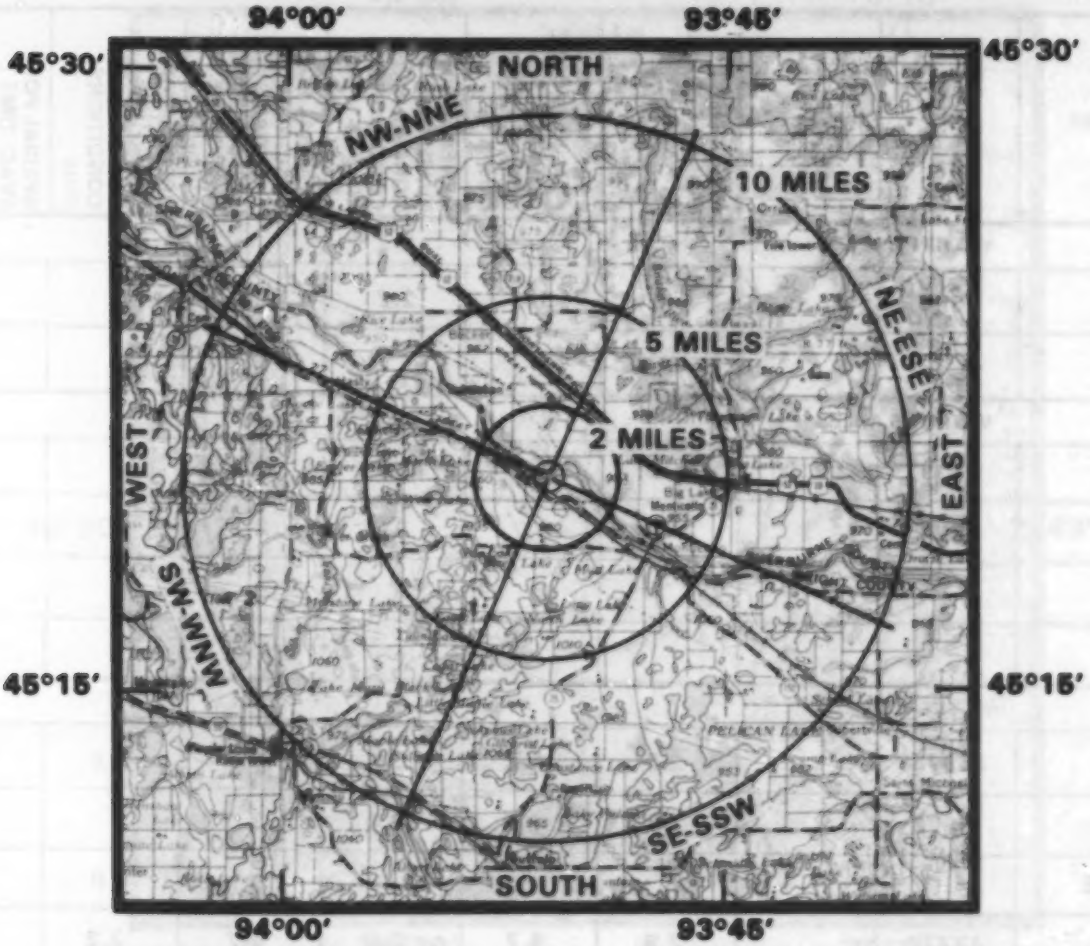
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
NW-ESE	266		0.2	0.3				
SE-WNW	509		0.3	0.3				
WITHIN 5 MILES								
NW-NNE	1099		0.5	0.7				
NE-ESE	1766		0.6	0.8				
SE-SSW	4573		0.8	0.9				
SW-WNW	1133		0.5	0.7				
WITHIN 10 MILES								
NW-NNE	2855		1.0	1.3				
NE-ESE	6609		1.3	1.7				
SE-SSW	8890		1.5	2.0			3.3	
SW-WNW	3620		1.1	1.4				

FOOTNOTES:

CONFIDENCE OF ESTIMATES: ADEQUATE. SOME CAPACITIES REPORTED APPEAR HIGH.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



MONTICELLO NUCLEAR GENERATING PLANT MINNESOTA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

FITZPATRICK/NINE MILE POINT
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
S	1088		1.2	1.5	2.2	2.5		
WITHIN 5 MILES								
SW	3733		1.2	1.7	2.2	2.7		
SE	2824		1.2	1.7	2.2	2.7		
WITHIN 10 MILES								
SW	35973		2.8	4.7	3.8	5.7	2.2	3.5
SE	9575		1.5	2.0	2.5	3.0		
LAKE							0.8	
ALL	43772		2.8	4.7	3.8	5.7	2.2	3.5

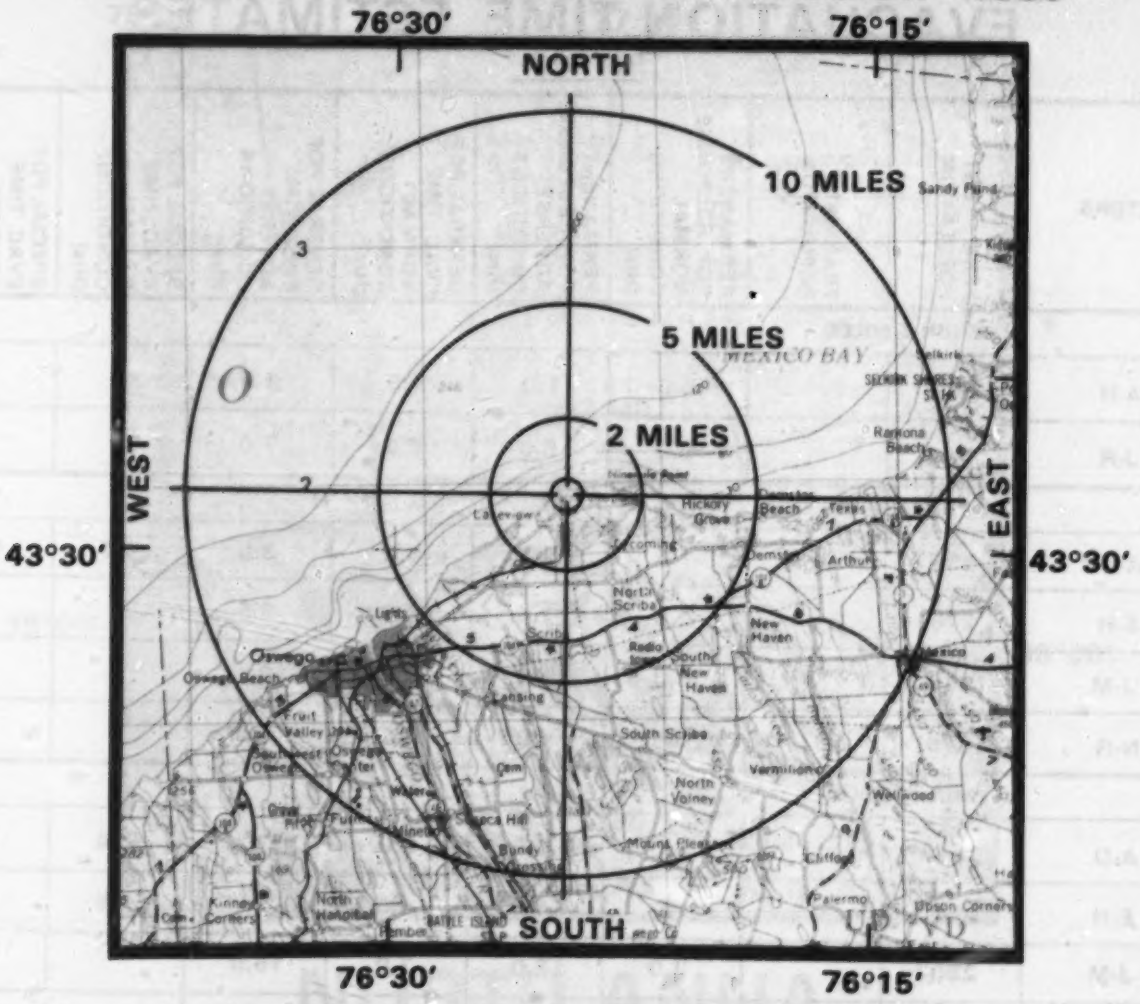
FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

FITZPATRICK NUCLEAR POWER PLANT IS LOCATED 1000 METERS EAST OF NINE MILE POINT; FOR THE PURPOSE OF THIS REPORT, NINE MILE POINT IS SITED

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



NINE MILE POINT NUCLEAR STATION NEW YORK

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

NORTH ANNA
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
A-H	72		0.8	1.0	1.5	1.8		
J-R	50		3.0	5.0	5.0	7.0		
WITHIN 5 MILES								
A-D	839		1.5	2.3	3.0	3.8	0.5	0.8
E-H	278		1.5	2.5	2.5	3.5		
J-M	1860		3.0	7.0	5.0	9.0		
N-R	1976		4.0	7.0	6.0	9.0		
WITHIN 10 MILES								
A-D	2966		3.0	4.3	6.0	7.3	0.4	0.6
E-H	3104		3.0	4.5	6.0	7.5	0.5	0.8
J-M	2800		3.0	12.0	7.0	16.0		
N-R	3754		4.0	12.0	8.0	16.0		

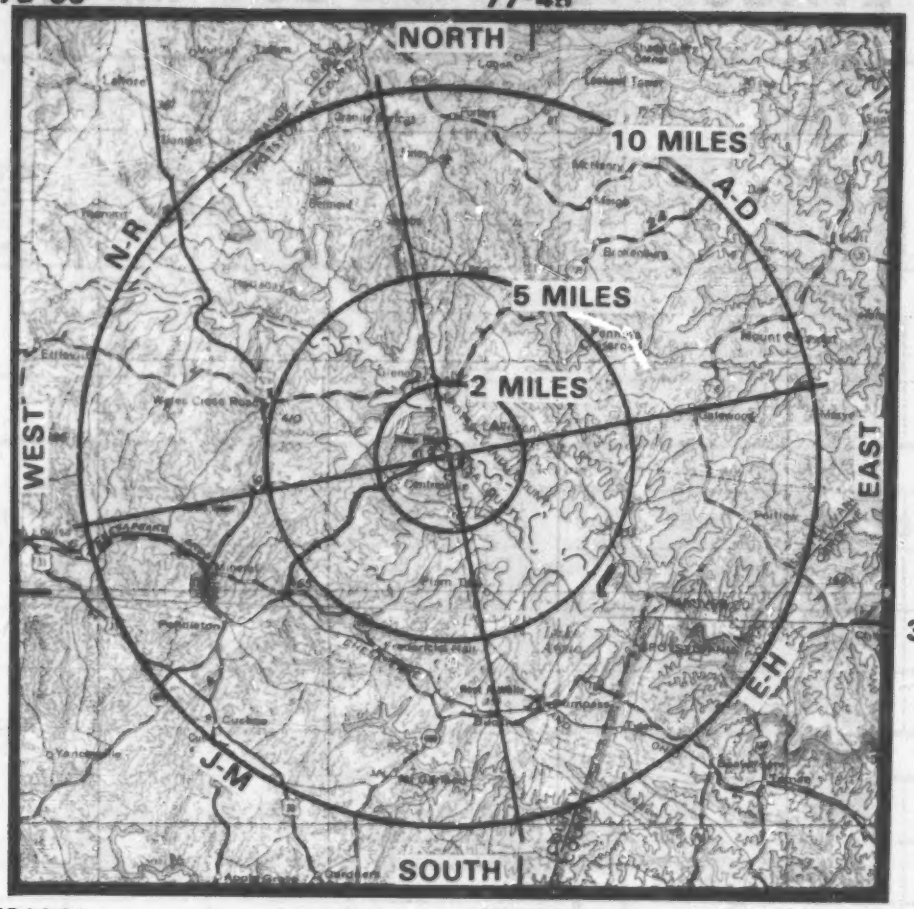
FOOTNOTES:

CONFIDENCE OF ESTIMATES: POOR. IT IS NOT POSSIBLE TO ASSESS THE OVERALL VALIDITY OF THE ESTIMATES SINCED THERE IS NO INFORMATION ON ASSUMPTIONS OR METHODOLOGY.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

78°00′ 77°45′



38°00′ 38°00′

78°00′ 77°45′

NORTH ANNA NUCLEAR STATION VIRGINIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
TRANSVERSE MERCATOR PROJECTION

OCONEE

EVACUATION TIME ESTIMATES

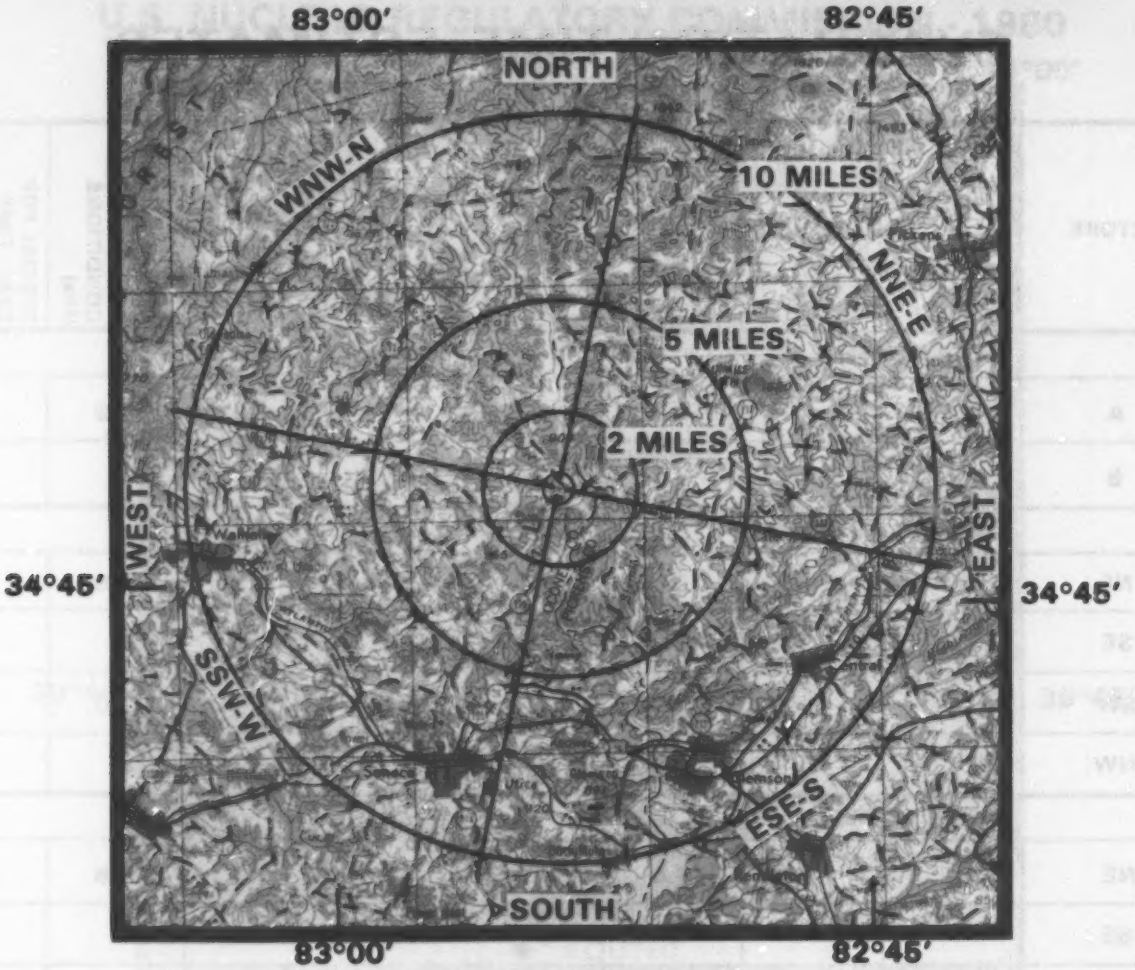
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
NNE-S	225	445			1.0	1.3		
SSW-N	63	2711			1.0	1.2		
WITHIN 5 MILES								
NNE-E	1961	264			3.0	4.0	3.5	5.0
ESE-S	1444	546			1.5	2.0		
SSW-W	1086	1775			1.5	2.0		
WNW-N	500	3923			1.5	2.0		
WITHIN 10 MILES								
NNE-E	7822	588			3.5	4.5		
ESE-S	23888	3283			3.0	4.2		
SSW-W	17495	3670			3.5	4.5	8.3	9.8
WNW-N	4279	5483			3.5	4.5		

FOOTNOTES: DATA MAY NOT BE CUMULATIVE FOR EVACUATION TIMES.

CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



OCONEE NUCLEAR STATION SOUTH CAROLINA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET

TRANSVERSE MERCATOR PROJECTION

OYSTER CREEK

EVACUATION TIME ESTIMATES

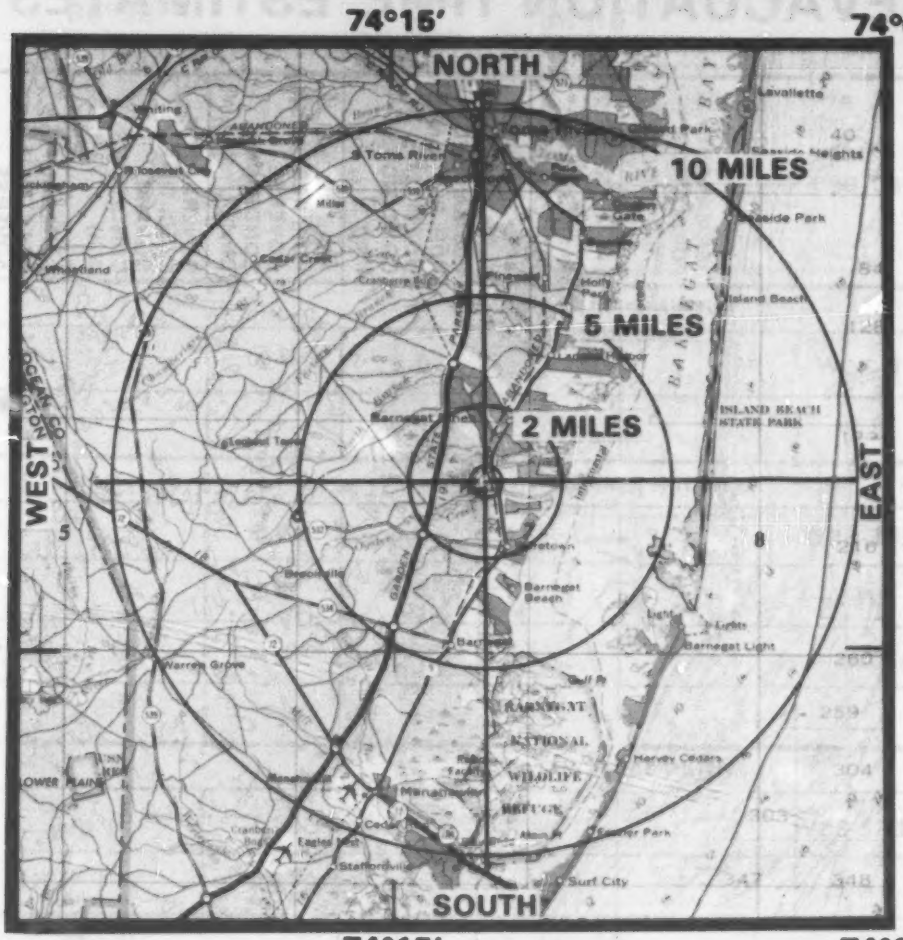
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
A			0.5	1.3	1.5	2.3	1.5	2.0
B			1.7	3.1	2.7	4.1		
WITHIN 5 MILES								
NE			2.5	4.3	3.5	5.3	1.5	2.0
SE			1.0	2.0	2.0	3.0		
SW			0.5	1.3	1.5	2.3	2.0	2.0
NW			0.8	1.7	1.8	2.7		
WITHIN 10 MILES								
NE			4.0	7.0	6.0	9.0	1.5	2.0
SE			1.4	3.1	3.4	5.1		
SW			0.5	1.8	2.5	3.8	1.5	2.0
NW			1.6	3.4	3.6	5.4	1.5	2.0

FOOTNOTES:

CONFIDENCE OF ESTIMATES: ADEQUATE. POPULATION DATA WAS NOT REPORTED, BUT WAS CONSIDERED IN ANALYSIS.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



OYSTER CREEK NUCLEAR GENERATING STATION NEW JERSEY

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

PALISADES
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
N-SSW			0.5	0.2		
WITHIN 5 MILES						
ESE-SSW			0.5	0.5		
N-E			1.0	2.3		
WITHIN 10 MILES						
ESE-SSW			2.0	2.1		
N-E			2.6	2.8		

FOOTNOTES: _____

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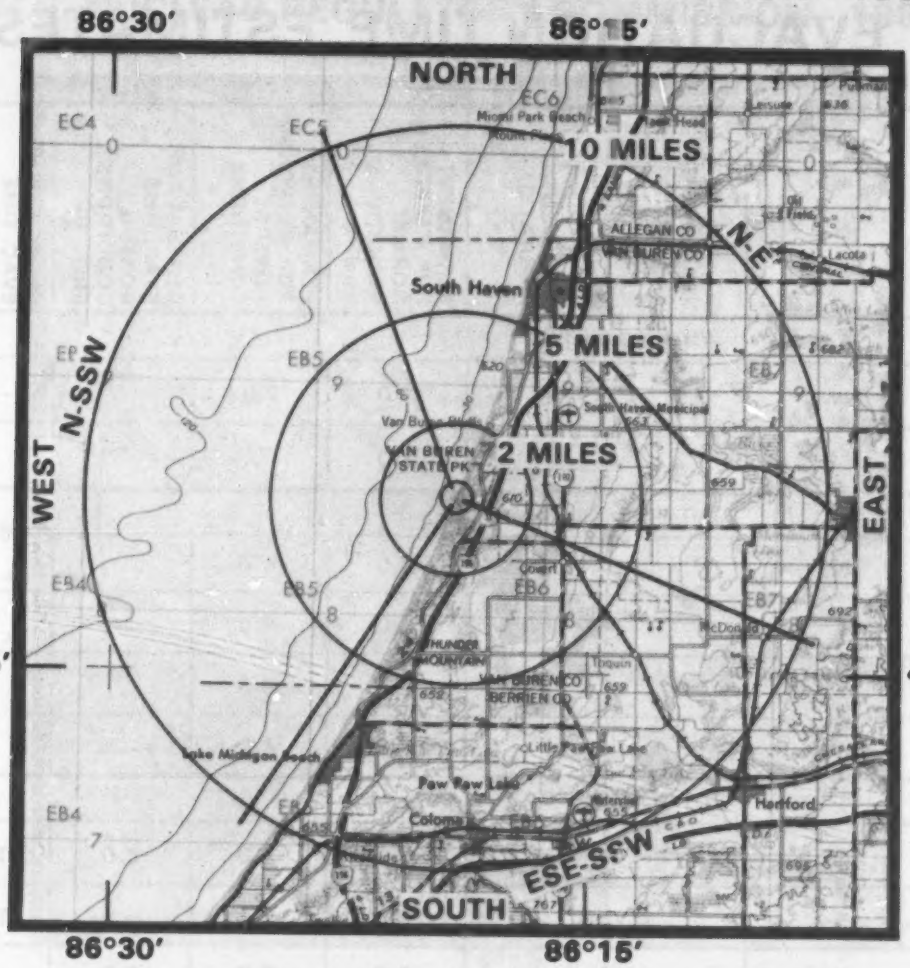
CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



PALISADES NUCLEAR POWER STATION MICHIGAN

Scale 1:250,000

5 0 5 10 15 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

TRANSVERSE MERCATOR PROJECTION

PEACH BOTTOM
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
NW			1.0	2.0		
SE			1.0	2.0		
WITHIN 5 MILES						
N			2.0	4.0		
E			2.0	4.0		
S			2.0	4.0		
W			2.0	4.0		
WITHIN 10 MILES						
N			3.0	9.0	6.0	12.0
E			3.0	9.0	6.0	12.0
S			2.0	6.0	5.0	9.0
W			2.0	6.0	5.0	9.0

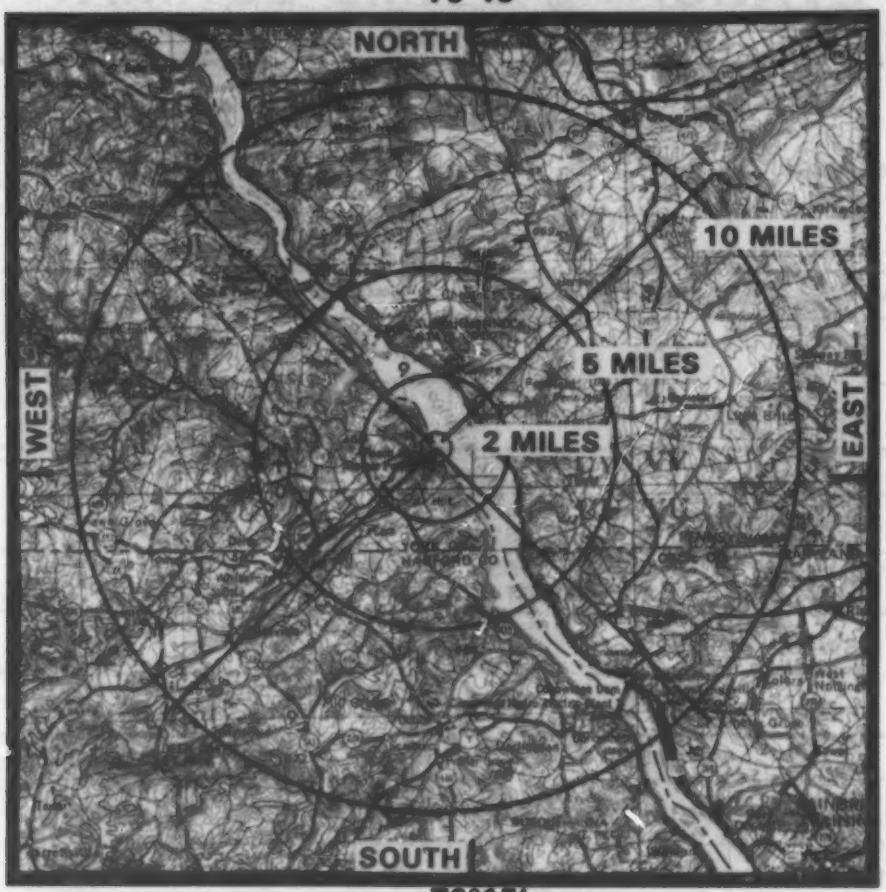
FOOTNOTES:

CONFIDENCE OF ESTIMATES: ADEQUATE. POPULATION DATA WAS NOT REPORTED, BUT WAS CONSIDERED IN ANALYSIS.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

76°15'



39° 45'

39°45'

76°15'

PEACH BOTTOM POWER STATION PENNSYLVANIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET

PILGRIM

EVACUATION TIME ESTIMATES

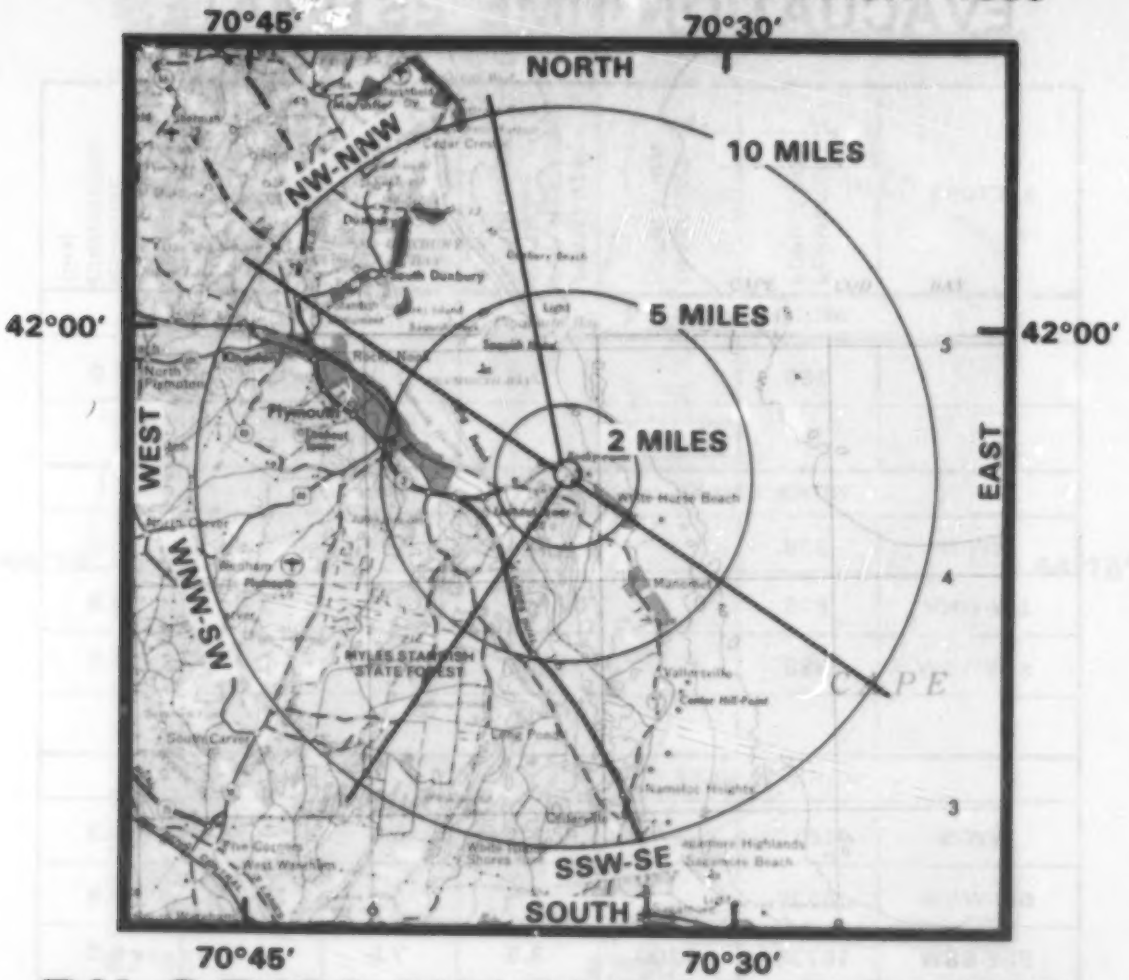
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
SE-NW	2235	4690* 2959	0.7	1.3	3.1	2.0
WITHIN 5 MILES						
NNW-NW	2241	5748 2959	0.5	2.0	2.6	2.8
WNW-SW	10938	5165 15014	1.4	2.8	6.0 **	3.8
SSW-SE	5619	9525 5210	1.7	1.7	5.3	2.4
WITHIN 10 MILES						
NNW-NW	21414	9219 13054	3.6	4.4	7.3	5.2
WNW-SW	35394	9862 25009	2.0	2.9	4.3	3.9
SSW-SE	6625	14302 11639	1.3	2.1	5.6	2.8

FOOTNOTES: *TRANSIENT INCLUDES SEASONAL RESIDENTS (TOP) AND SEASONAL TRANSIENT (BOTTOM) **THE EVACUATION TIME ESTIMATE RECEIVED FROM THE LICENSEE FOR GENERAL POPULATION WITHIN 5 MILES IS LARGER THAN THAT OF THE 10 MILE

CONFIDENCE OF ESTIMATES: EXCELLENT

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



PILGRIM NUCLEAR POWER STATION MASSACHUSETTS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

POINT BEACH
EVACUATION TIME ESTIMATES

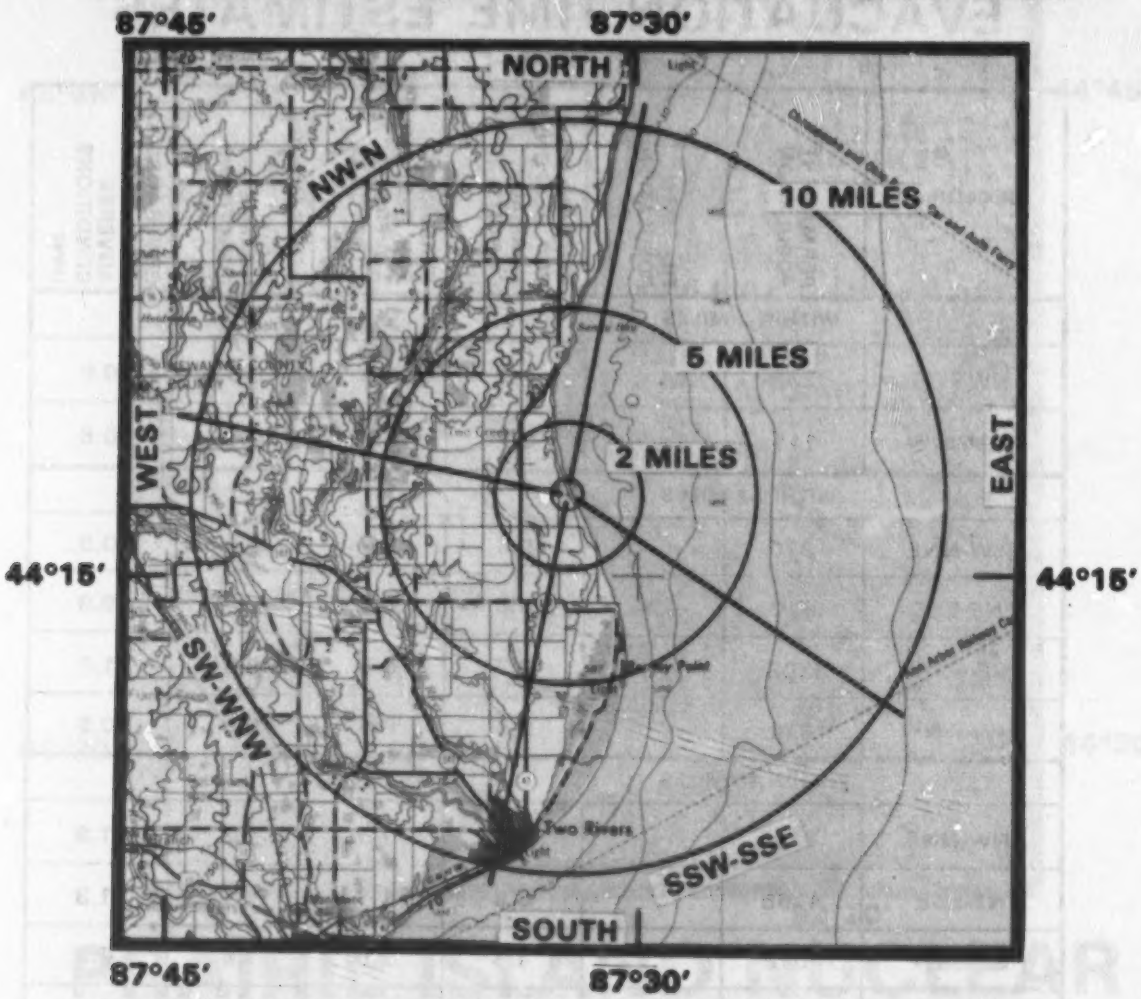
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
	265		0.9	1.8	0.9	2.0
WITHIN 5 MILES						
NW-N	338		0.8	1.8	0.9	2.0
SW-WNW	519		1.1	2.3	1.3	2.5
SSE-SSW	388		0.5	1.8	0.9	2.0
WITHIN 10 MILES						
NW-N	1613		1.1	3.0	1.7	3.3
SW-WNW	4339		2.8	5.5	3.5	6.5
SSE-SSW	15738	1200	3.5	7.5	4.0	8.0

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



POINT BEACH NUCLEAR POWER STATION WISCONSIN

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

PRAIRIE ISLAND
EVACUATION TIME ESTIMATES

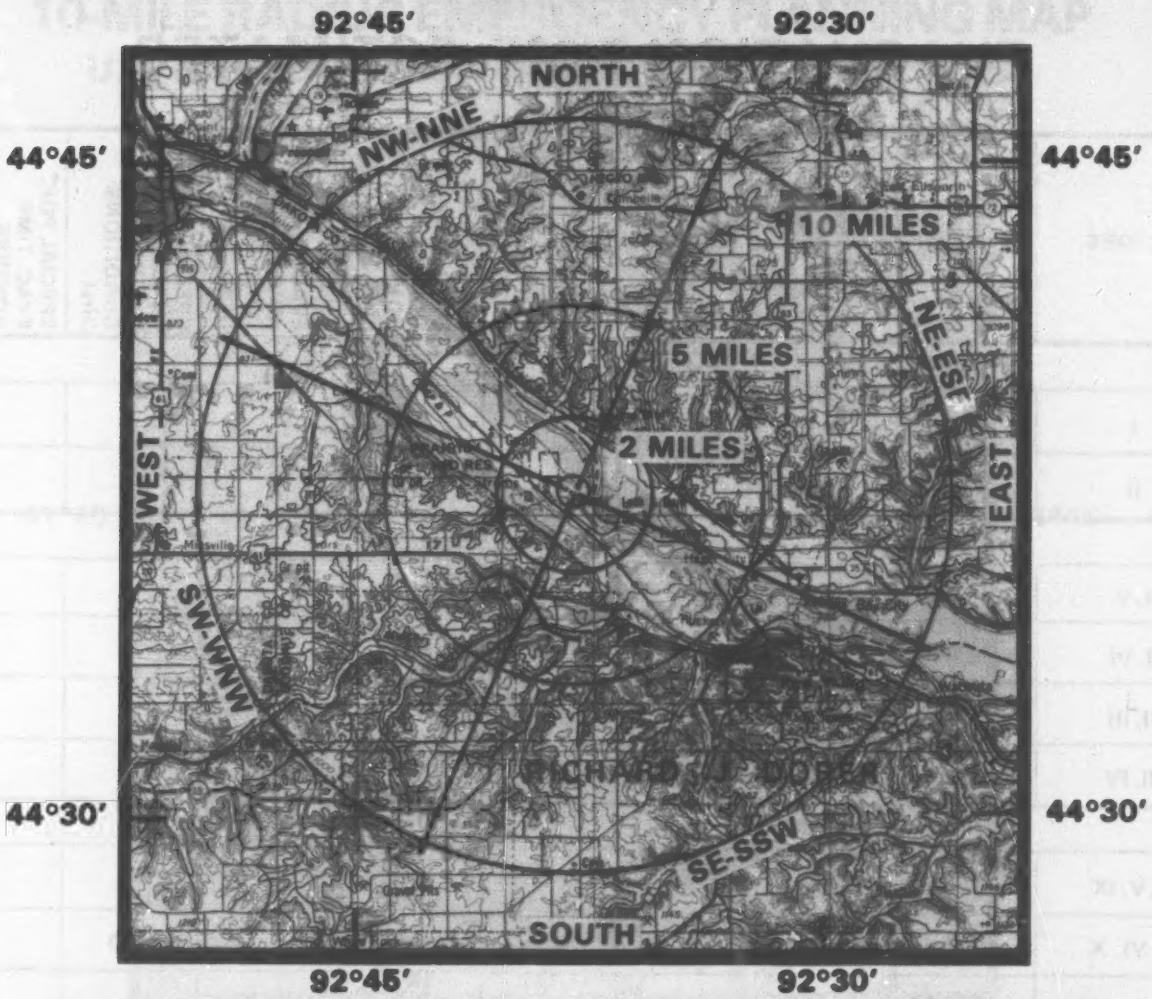
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
NW-ESE	238		0.3	0.3	0.5	0.6
SE-WNW	111		0.3	0.3	0.5	0.6
WITHIN 5 MILES						
NW-NNE	370		0.5	0.7	0.8	0.9
NE-ESE	610		0.5	0.7	0.8	0.9
SE-SSW	2302		0.7	0.9	0.9	1.1
SW-WNW	378		0.5	0.7	0.8	0.9
WITHIN 10 MILES						
NW-NNE	2153		1.0	1.3	1.3	1.6
NE-ESE	4355		0.8	1.1	1.1	1.3
SE-SSW	14016		1.5	2.0	1.8	2.3
SW-WNW	1790		1.0	1.3	1.3	1.6

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



PRAIRIE ISLAND NUCLEAR POWER STATION MINNESOTA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

QUAD CITIES

EVACUATION TIME ESTIMATES

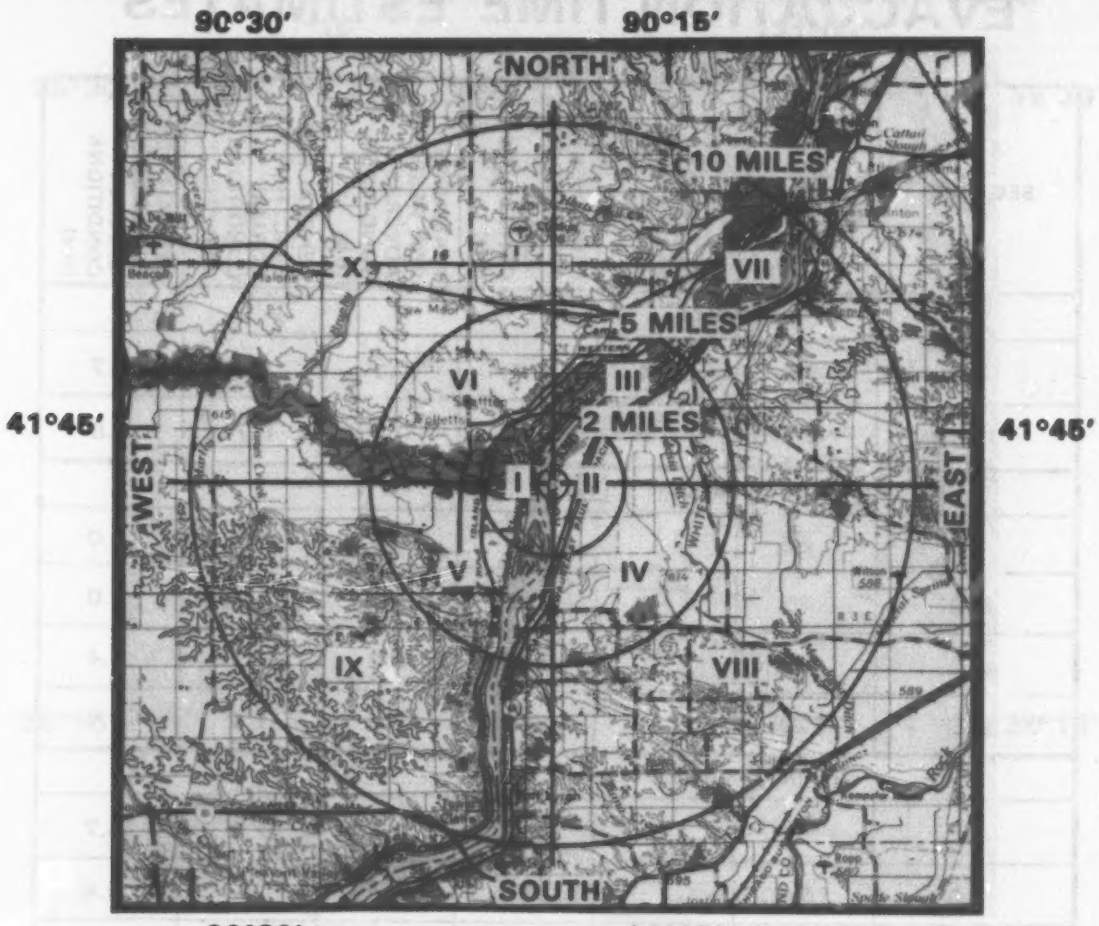
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
I	45				3.0			
II	145	850			5.0			
WITHIN 5 MILES								
I, V	1350				7.0			
I, VI	2815	300			8.0			
II, III	700	885			8.0			
II, IV	1350	850			7.0			
WITHIN 10 MILES								
I, V, IX	5310				9.0			
I, VI, X	42240	10300			12.0		5.0	
II, III, VII	1510	885			9.0			
II, IV, VIII	7265	850			8.0		1.0	

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



QUAD CITIES NUCLEAR POWER STATION ILLINOIS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

RANCHO SECO
EVACUATION TIME ESTIMATES

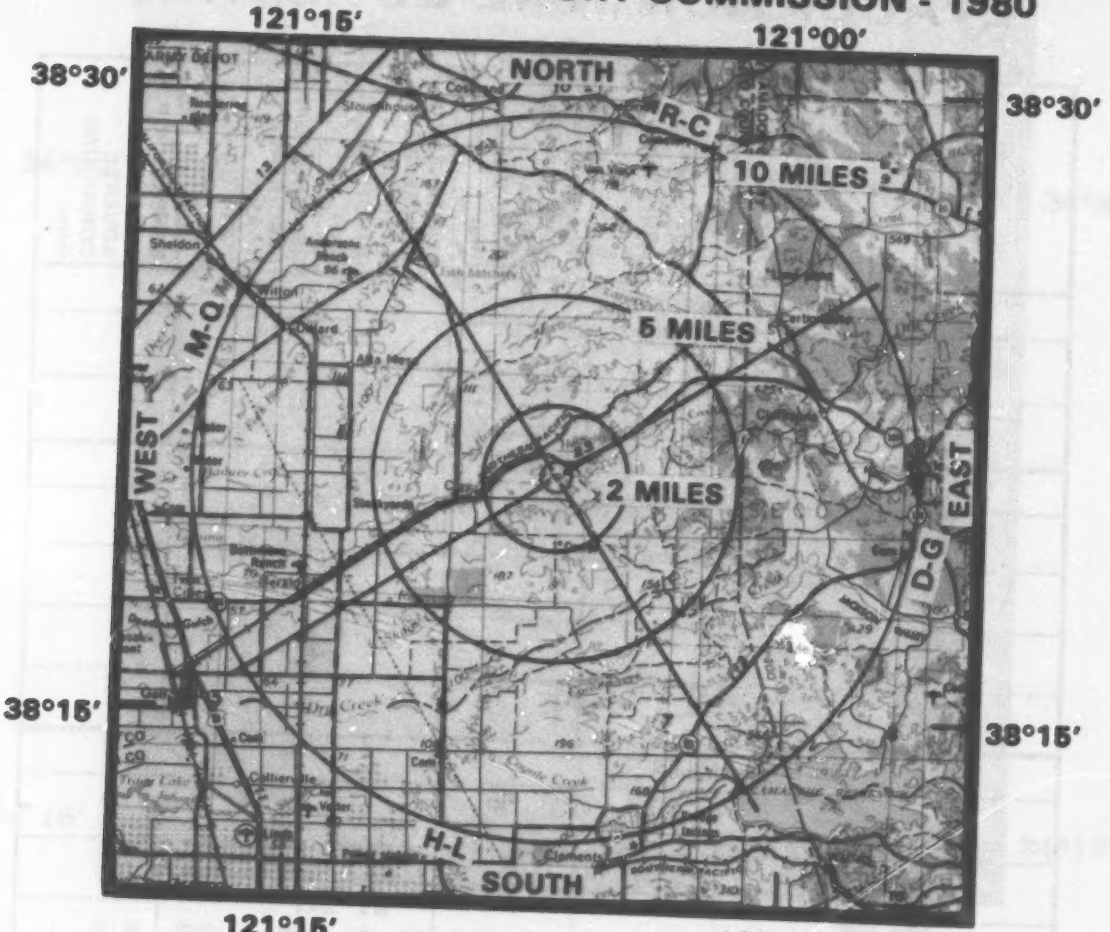
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
R-G	14	2234	0.1	0.1	0.6	0.7
H-Q	87		0.1	0.1	0.7	0.8
WITHIN 5 MILES						
R-C	55		0.2	0.4	0.7	1.0
D-G	35		0.2	0.4	0.7	1.0
M-Q	478		0.2	0.2	1.3	1.4
H-L	229		0.2	0.5	1.1	1.4
WITHIN 10 MILES						
R-C	303		0.3	1.1	2.9	3.7
D-G	2491		0.3	1.1	3.7	4.4
M-Q	3674		0.3	1.1	3.7	4.4
H-L	1816		0.3	1.1	3.7	4.4

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: EXCELLENT

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



RANCHO SECO POWER PLANT CALIFORNIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

H.B. ROBINSON*

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
WITHIN 5 MILES						
WITHIN 10 MILES						

FOOTNOTES: _____

_____

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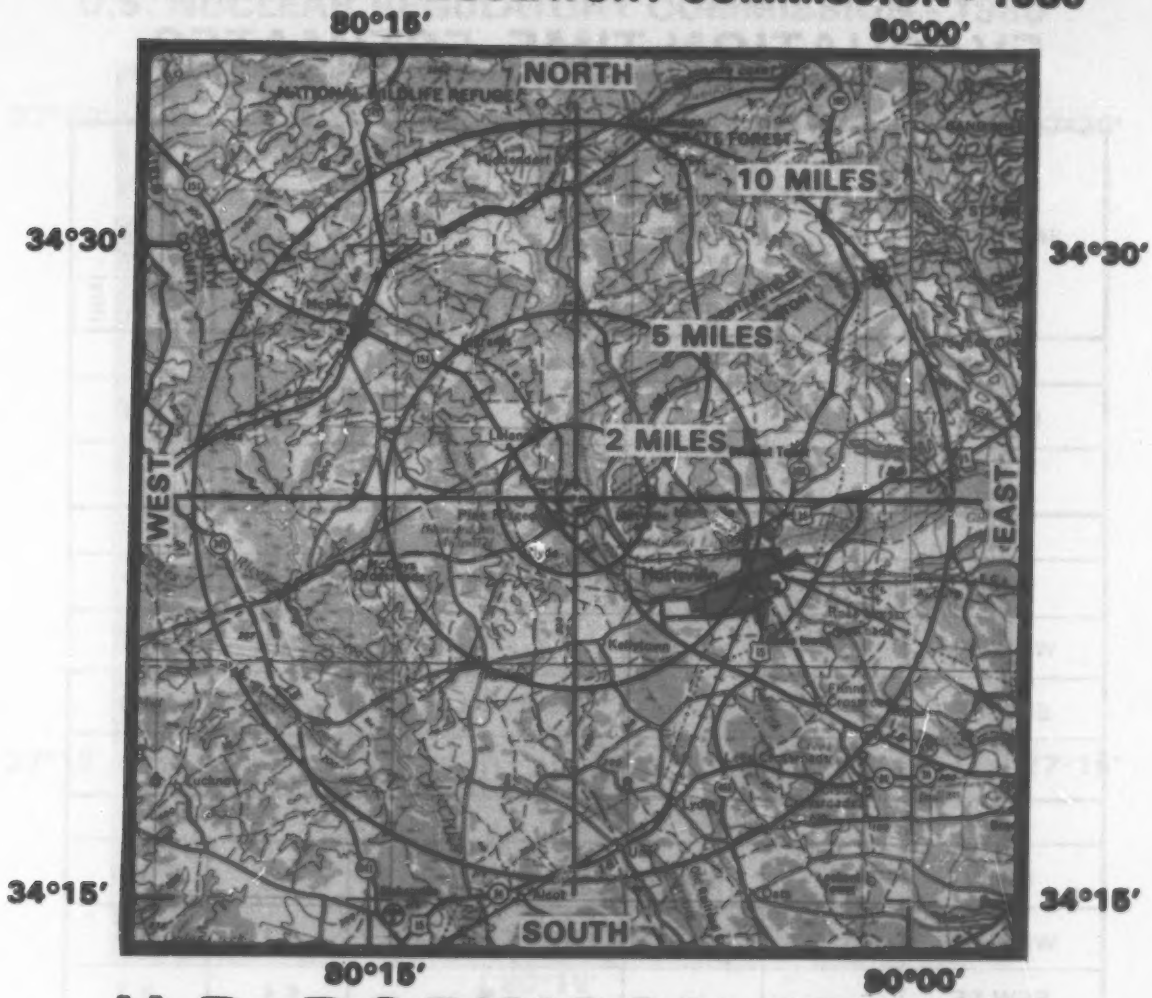
CONFIDENCE OF ESTIMATES:* NO RESPONSE PROVIDED FROM LICENSEE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



H.B. ROBINSON STEAM ELECTRIC PLANT SOUTH CAROLINA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

ST. LUCIE

EVACUATION TIME ESTIMATES

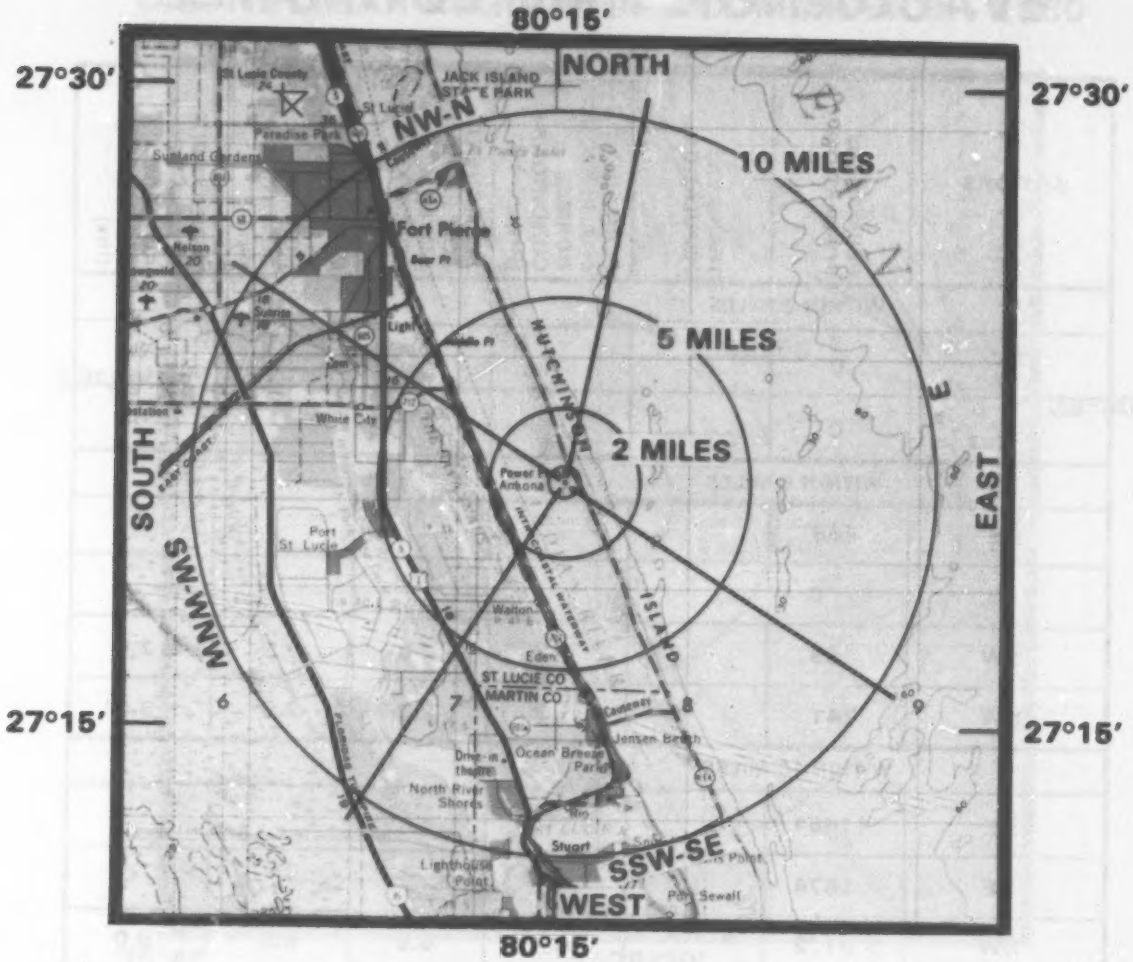
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
N-SSE					1.8	2.1
WITHIN 5 MILES						
N-NW					2.8	3.1
WNW-SW					2.8	3.1
SSW-SE					3.5	3.8
WITHIN 10 MILES						
N-NW					6.3	6.6
WNW-SW					5.1	5.3
SSW-SE					5.4	5.7

FOOTNOTES:

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



ST. LUCIE NUCLEAR STATION FLORIDA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

SALEM/HOPE CREEK
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
E	0					
W	0					
WITHIN 5 MILES						
NE	468					
SE	0					
SW	89		1.8	2.8	2.0	3.0
NW	741		1.8	2.8	2.0	3.0
WITHIN 10 MILES						
NE	11451					
SE	1574					
SW	3112		5.5	8.5	6.0	9.0
NW	7775		5.5	8.5	6.0	9.0

FOOTNOTES: _____

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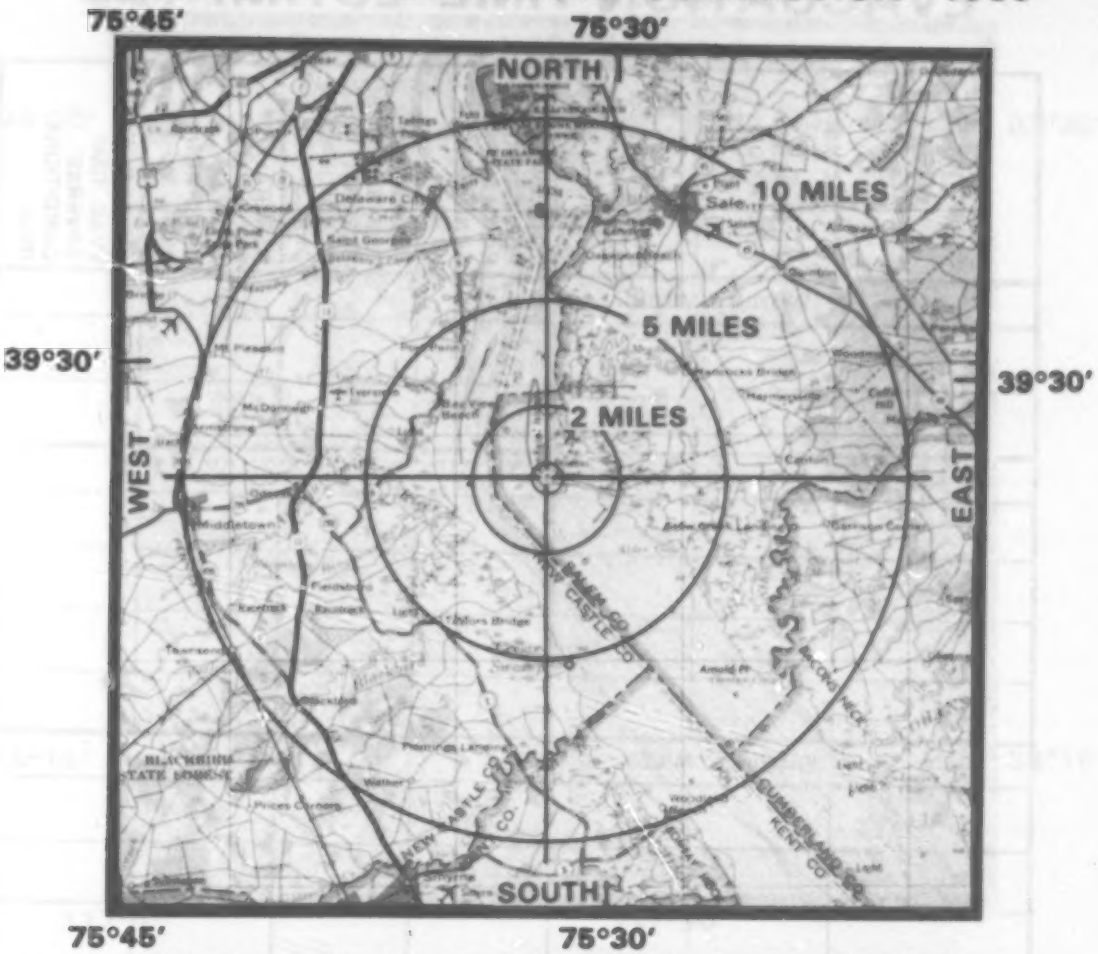
CONFIDENCE OF ESTIMATES: POOR

A REVISED EVACUATION TIME ESTIMATE, WHICH WAS RECEIVED AFTER THE DEADLINE FOR INCLUSION IN THIS ANALYSIS, HAS BEEN EVALUATED AND RATED EXCELLENT.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



• SALEM/HOPE CREEK NUCLEAR POWER STATION NEW JERSEY

Scale 1:250,000

5 0 5 10 15 Statue Miles 20

5 0 5 10 15 20 25 Kilometers 30

5 0 5 10 Nautical Miles 15

CONTOUR INTERVAL 50 FEET

SAN ONOFRE
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
WITHIN 5 MILES						
WITHIN 10 MILES						
ALL					5.0	
						•

FOOTNOTES: _____

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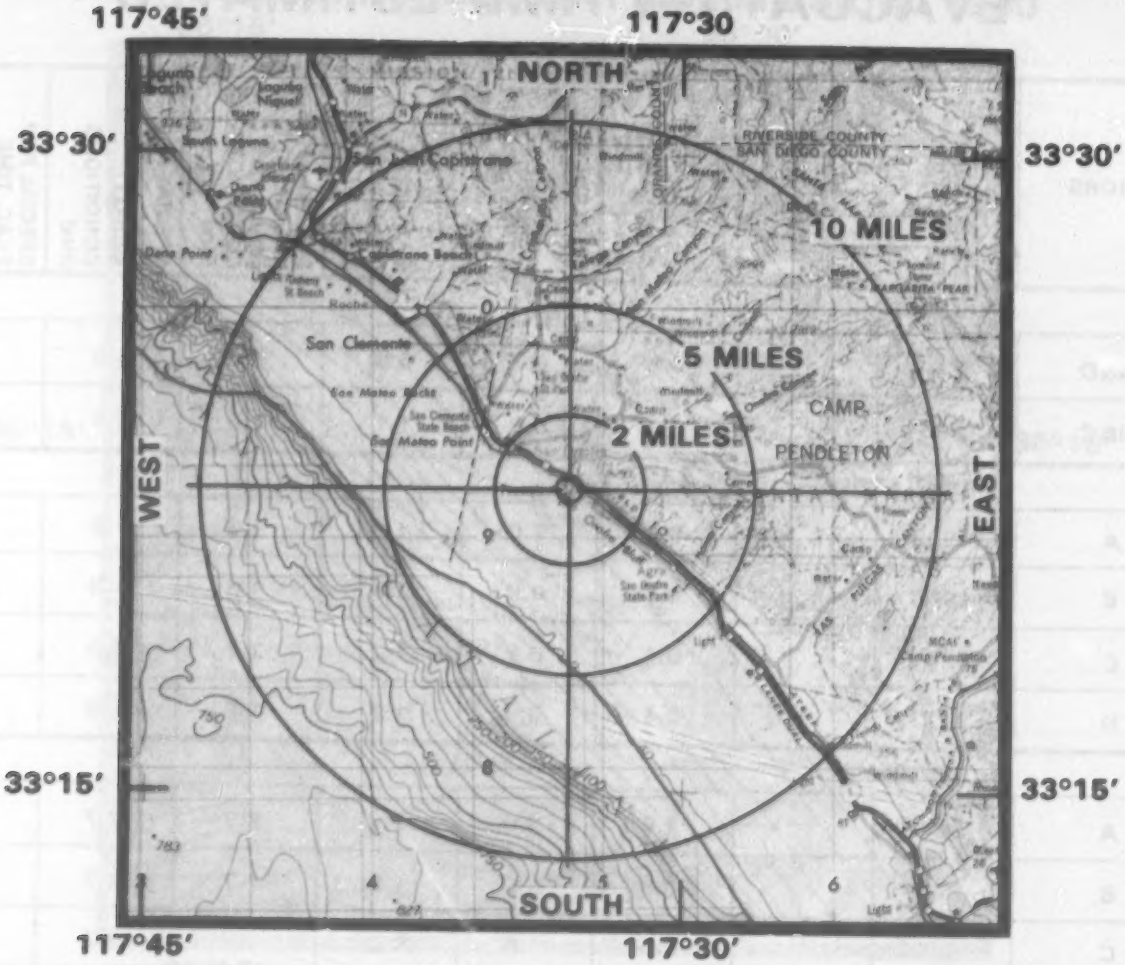
CONFIDENCE OF ESTIMATES: POOR _____

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



SAN ONOFRE NUCLEAR GENERATING STATION CALIFORNIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

SEQUOYAH
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
A&D	774		0.2	0.7	0.9	1.4	1.5	1.8
B&C	1560		0.3	0.8	1.1	1.6	1.9	2.3
WITHIN 5 MILES								
A	4833		0.5	1.0	1.3	1.6	1.9	2.3
B	1950		0.3	0.8	1.1	1.6	1.9	2.3
C	3341		0.4	0.9	1.2	1.7	1.9	2.3
D	3173		0.4	0.9	1.2	1.5	1.9	2.3
WITHIN 10 MILES								
A	6840		1.5	2.0	2.2	2.7	2.7	3.2
B	2730		0.5	1.0	1.2	1.7	2.7	3.2
C	8900		0.5	1.0	1.2	1.7	2.7	3.2
D	19020		1.4	1.9	2.1	2.6	2.7	3.2

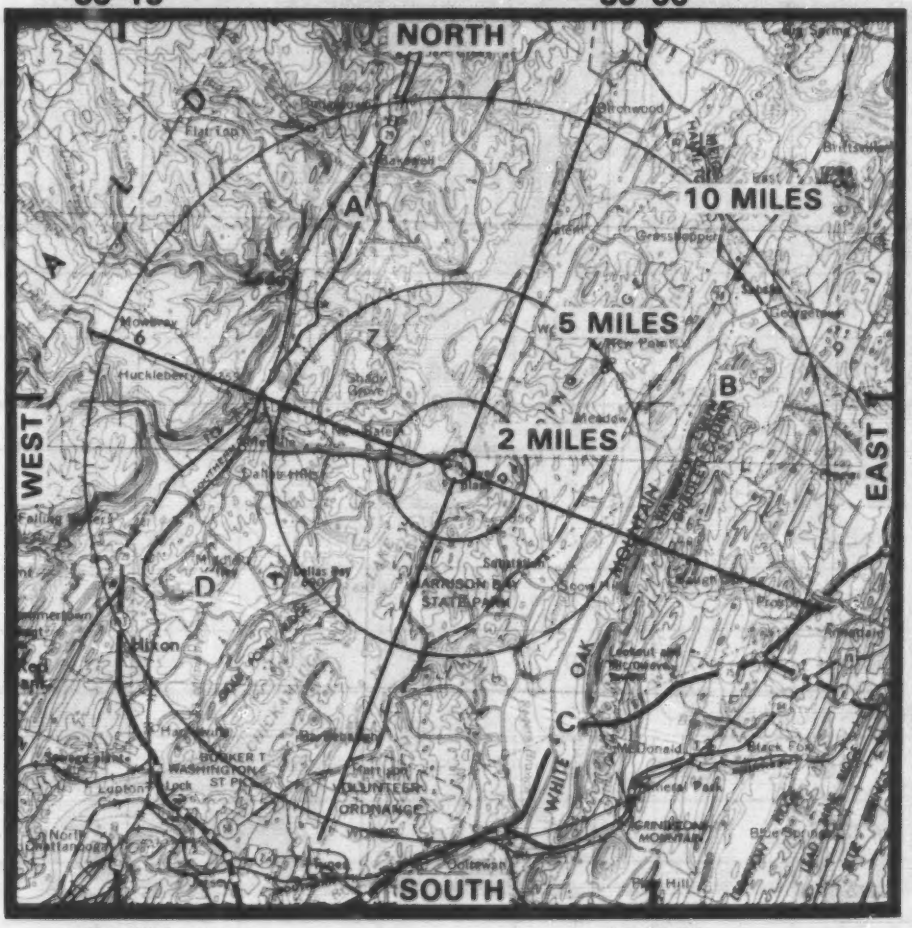
FOOTNOTES:

CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

85°15′ 85°00′



35°15′ 35°15′

85°15′ 85°00′

SEQUOYAH NUCLEAR PLANT TENNESSEE

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET

READEX FICHE

SURRY
EVACUATION TIME ESTIMATES

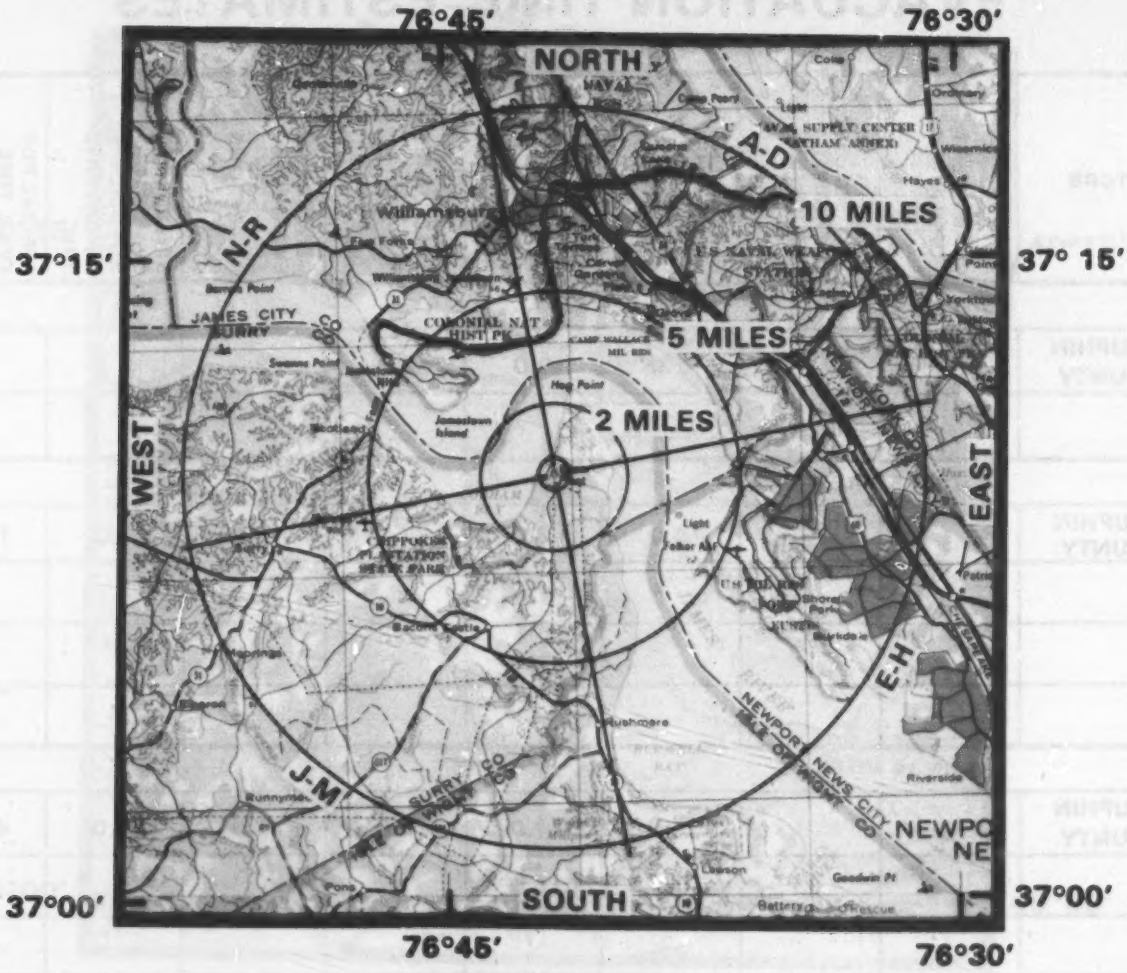
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
A-H	0							
J-R	24		1.0	1.5	1.5	2.0		
WITHIN 5 MILES								
A-D	1074		3.3	6.0	5.5	8.3		
E-H	3624		2.0	4.0	3.5	5.5	3.0	4.0
J-M	664		2.0	3.0	3.5	4.5		
N-R	138		1.0	2.0	2.0	3.0		
WITHIN 10 MILES								
A-D	27940	10000	5.0	9.0	9.0	13.0	4.0	5.0
E-H	44736		4.0	5.0	6.0	7.0		
J-M	4548		6.0	7.5	10.0	11.5		
N-R	5283		4.5	6.0	6.5	8.0		

FOOTNOTES:

CONFIDENCE OF ESTIMATES: POOR. IT IS NOT POSSIBLE TO ASSESS THE OVERALL VALIDITY OF THE ESTIMATES SINCE THERE IS NO INFORMATION ON ASSUMPTIONS OR METHODOLOGY.

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



SURRY POWER STATION VIRGINIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

THREE MILE ISLAND
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
DAUPHIN COUNTY			1.0	2.0	2.0	3.0		
WITHIN 5 MILES								
DAUPHIN COUNTY			4.0	8.0	7.0	11.0	5.0	10.0
WITHIN 10 MILES								
DAUPHIN COUNTY			7.0	21.0	13.0	27.0	24.0	48.0

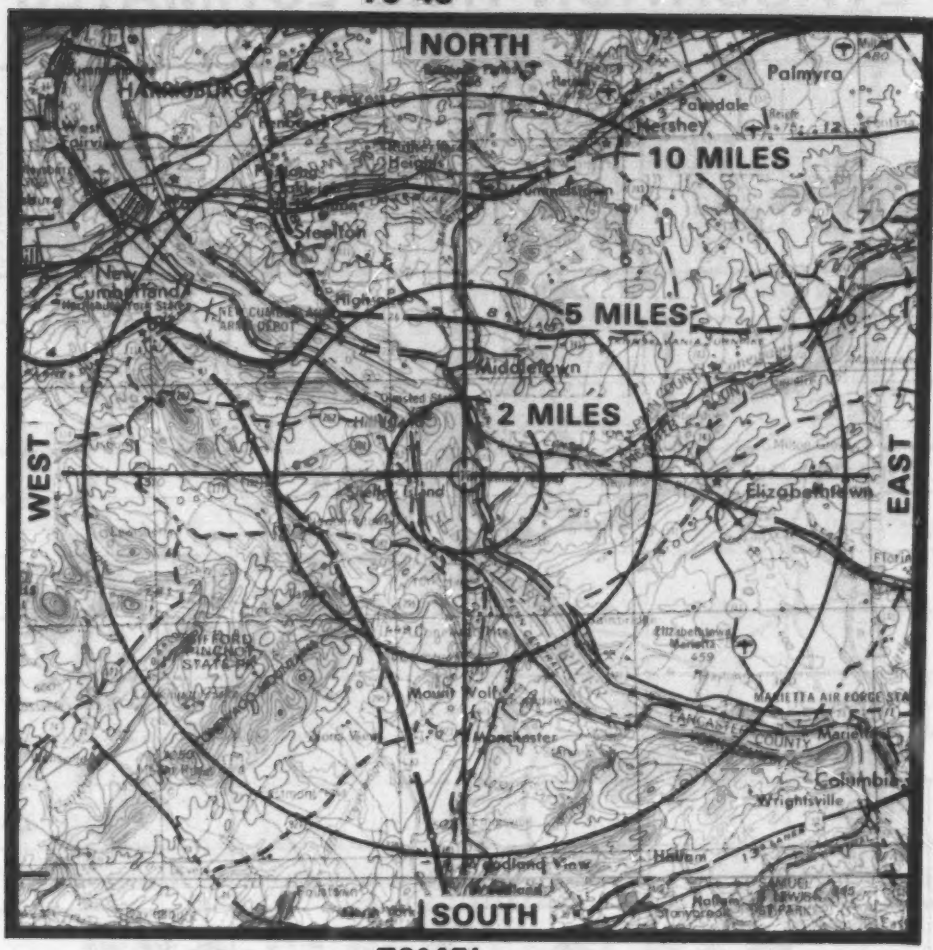
FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: POOR

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

76°45'



40°15'

40°15'

40°00'

40°00'

76°45'

THREE MILE ISLAND NUCLEAR STATION PENNSYLVANIA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

TROJAN
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
W-ENE	606		0.7	1.0	1.6	2.0		
E-WSW	852		0.6	0.9	1.4	1.7		
WITHIN 5 MILES								
WNW-N	3266		1.7	2.1	3.7	4.1		
NNE-E	1637		0.9	1.2	2.3	2.6		
ESE-S	2245		0.9	1.2	2.6	2.9		
SSW-W	1171		0.9	1.3	1.7	1.9		
WITHIN 10 MILES								
WNW-N	54040		4.3	4.5	5.7	6.0	3.4	4.7
NNE-E	3850		1.4	2.0	6.0	6.6		
ESE-S	4 522		1.2	1.5	2.9	3.3		
SSW-W	2214		1.0	1.4	2.1	2.5		

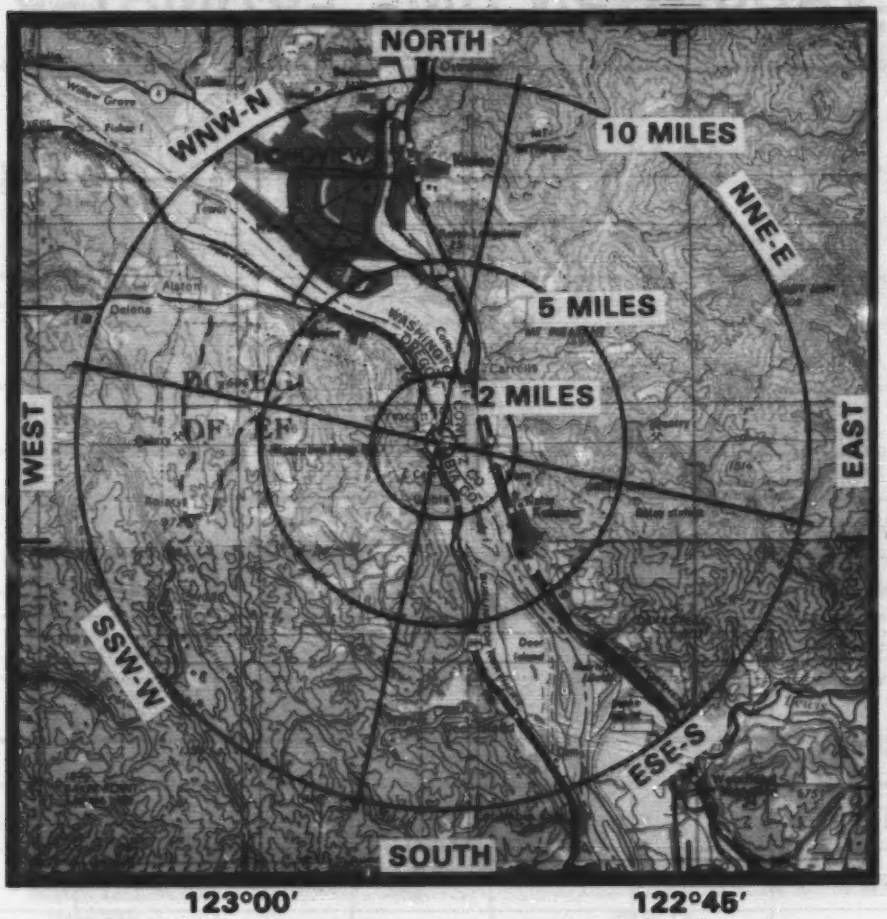
FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: EXCELLENT

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

123°00′ 122°45′



46°00′ 46°00′

123°00′ 122°45′

TROJAN NUCLEAR POWER PLANT OREGON

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

TURKEY POINT
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
N-SSE					1.5	1.8
WITHIN 5 MILES						
N-NW					1.7	1.9
WNW-SW					1.6	1.8
SSW-SE					1.5	1.8
WITHIN 10 MILES						
N-NW					4.3	4.5
WNW-SW					6.1	6.3
SSW-SE					1.5	1.8

FOOTNOTES: _____

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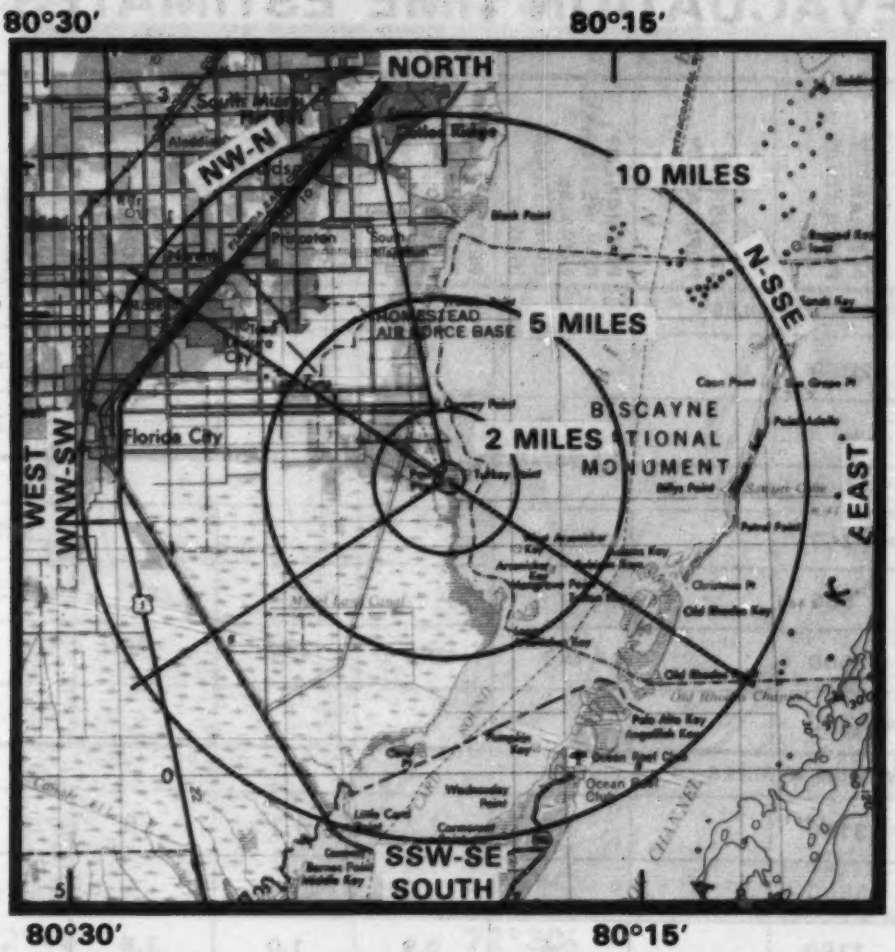
_____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



TURKEY POINT NUCLEAR POWER STATION FLORIDA

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

VERMONT YANKEE
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
Q-F	2060						1.2	1.3
G-P							1.2	1.3
WITHIN 5 MILES								
C-F	2240						1.3	1.5
G-K	850						1.2	1.4
L-P	500		0.3	0.6	0.9	1.4		
Q-B	3400						1.2	1.4
WITHIN 10 MILES								
C-F	3100		0.5	1.1	1.1	1.8		
G-K	6800						1.9	2.7
L-P	1150		0.4	0.9	1.0	1.6		
Q-B	14450	1200					3.0	3.0

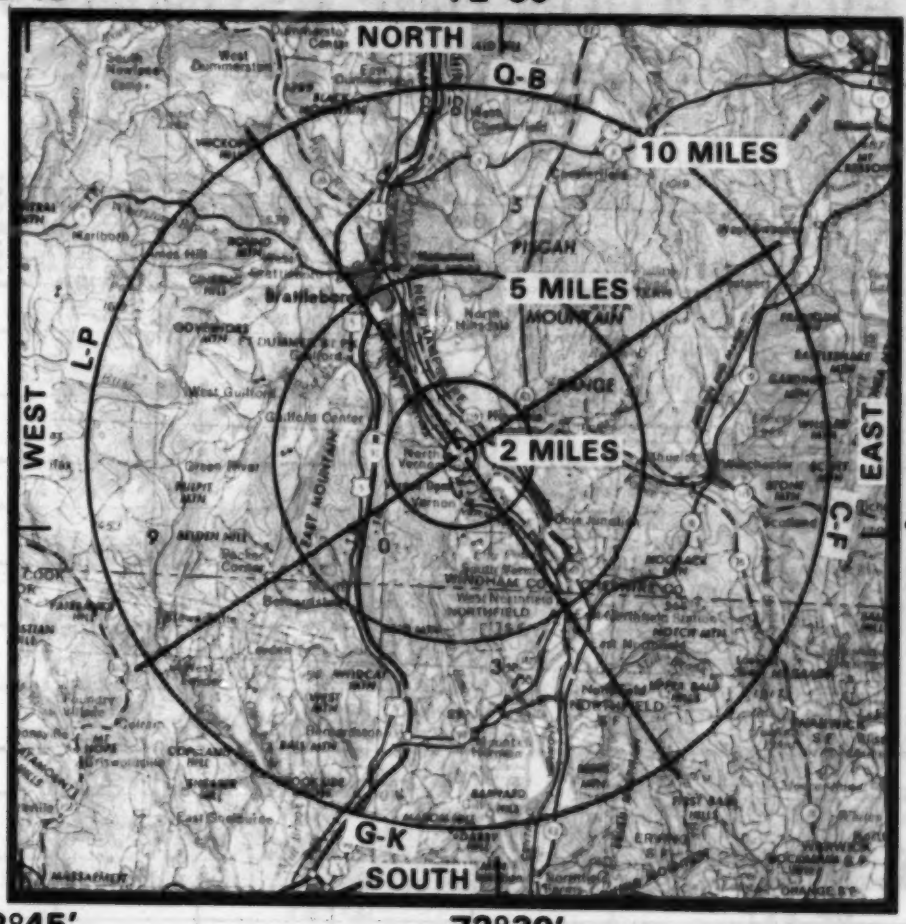
FOOTNOTES: EVACUATION TIMES ONLY REPORTED FOR CONTROLLING CONDITION, EITHER GENERAL POPULATION EVACUATION OR SPECIAL FACILITIES EVACUATION.

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

72°45′ 72°30′



42°45′ 42°45′

72°45′ 72°30′

VERMONT YANKEE NUCLEAR POWER STATION VERMONT

Scale 1 250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

YANKEE ROWE
EVACUATION TIME ESTIMATES

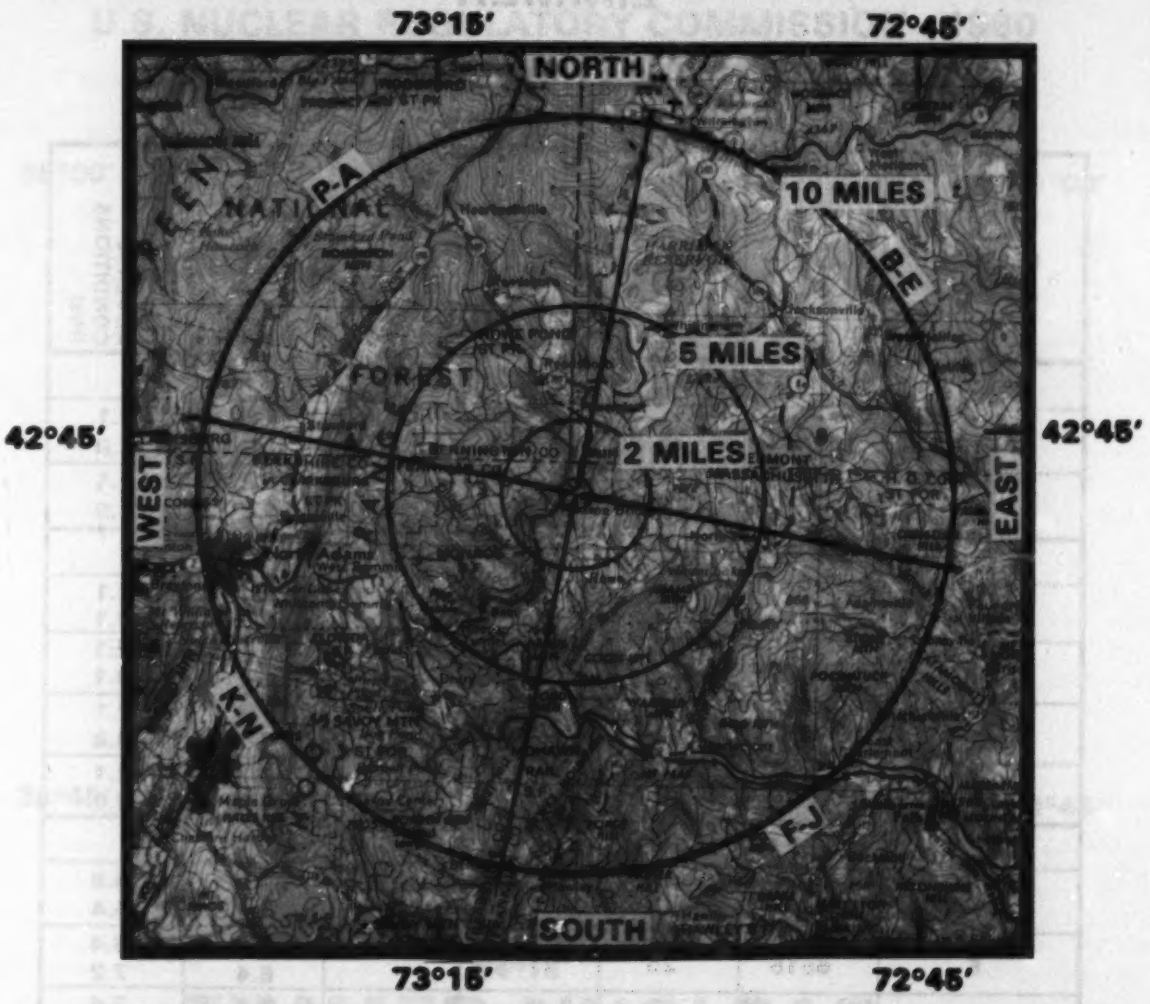
SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
Q-F			0.1	0.2		
G-P	225		0.1	0.2		
WITHIN 5 MILES						
B-E	425		0.2	0.4		
F-J	315		0.3	0.6		
K-N	240		0.3	0.6		
P-A	530		0.4	0.7		
WITHIN 10 MILES						
B-E	1650		0.7	1.4		
F-J	1400		0.6	1.3		
K-N	13175		0.9	1.8		
P-A	700		0.5	1.1		

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980



YANKEE ROWE NUCLEAR POWER STATION MASSACHUSETTS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

ZIMMER

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
E	609	25			1.0 1.8	1.1 1.9
W	359	80			1.0 1.8	1.1 1.9
WITHIN 5 MILES						
N	1876	25			1.7 2.7	2.1 3.1
E	1417	25			1.7 2.7	2.1 3.1
S	858	80			1.7 3.4	2.1 3.8
W	1246	80			1.7 2.6	2.1 3.0
WITHIN 10 MILES						
N	12788	475			2.9 4.4	3.9 5.4
E	6515	25			2.6 6.4	3.4 7.2
S	2303	580			2.6 6.8	3.4 7.6
W	4774	580			2.6 3.6	3.4 4.4

FOOTNOTES: *PROMPT (TOP)/WITHOUT PROMPT NOTIFICATION SYSTEM (BOTTOM).

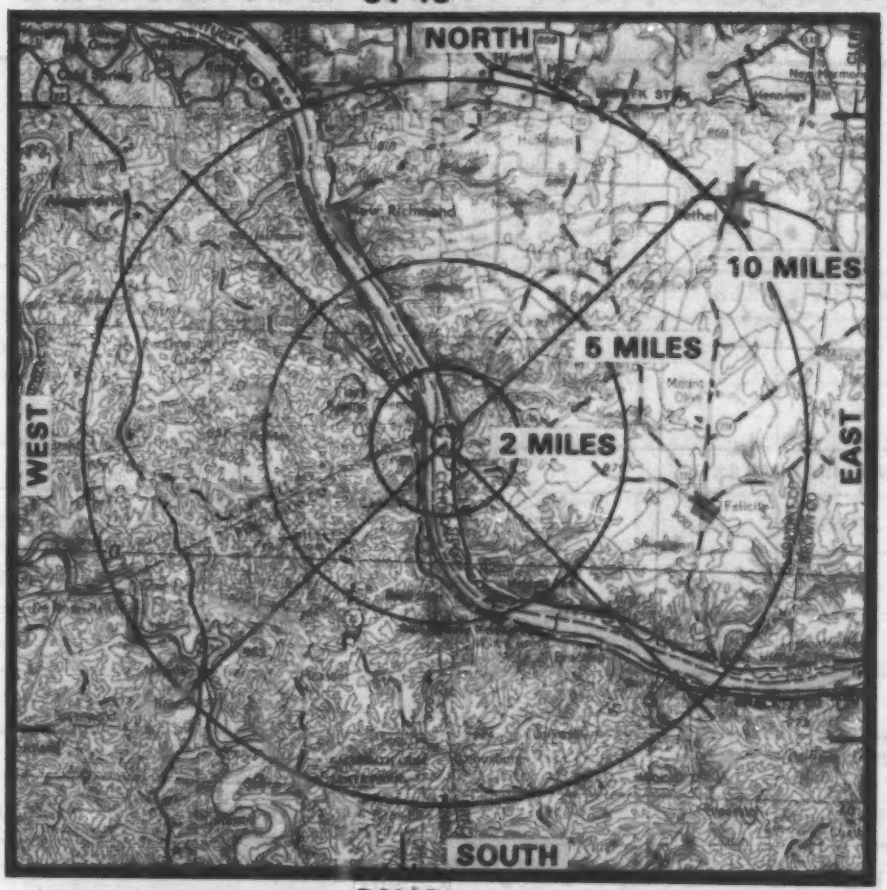
CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

84°15′

39°00′



39°00′

38°45′

38°45′

84°15′

ZIMMER NUCLEAR POWER PLANT OHIO

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 100 FEET
WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS

ZION
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
I	28700	435			5.0		12.0	
WITHIN 5 MILES								
I, II	38355	660			6.0		12.0	
I, III	49100	6140			6.0		12.0	
WITHIN 10 MILES								
I, II, IV	118700	27095			21.0		12.0	
I, III, V	150000	39090			8.0		24.0	

FOOTNOTES:

CONFIDENCE OF ESTIMATES: ADEQUATE

10-MILE RADIUS EMERGENCY PLANNING MAP

U.S. NUCLEAR REGULATORY COMMISSION - 1980

ZION NUCLEAR POWER STATION ILLINOIS

Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 50 FEET

NRC FORM 335 (7-77) U.S. NUCLEAR REGULATORY COMMISSION

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Volume 2 contains the summaries of evacuation time estimates which were provided by nuclear reactor licensees. These summaries are condensed versions of the evaluations and tables in Volume 1. Maps of the corresponding emergency planning zones for the nuclear power plants are also included. For convenience, each summary and its related map are on facing pages.

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FOR

NUREG/CR-1856, Vol. 2
PNL-3662

AN ANALYSIS OF EVACUATION TIME ESTIMATES AROUND 52 NUCLEAR POWER PLANT SITES

Summary Tables and Maps

Performed by

Pacific Northwest Laboratory

for the

U.S. NUCLEAR REGULATORY COMMISSION

Please make the following corrections, as indicated, to report pages 24, 32, 36, 48, and 92; and replace pages 2, 20, 30, 70, and 96 with the attached revised tables.

Page 24 - Correct column 1 SECTORS, row 4. Delete I, VI, replace with I, VII.

Page 32 - Correct column 1 SECTORS, last entry. Delete II, VI, VIII, replace with II, IV, VIII.

Page 36 - Correct column 7, GEN. POP., Evac. time, Adverse cond., row 7. Delete 10.0, replace with 9.9.

Page 48 - Correct column 8, SPEC. POP., Evac. time, Normal cond., row 8. Delete 7.2, replace with 1.2.

Page 92 - Correct column 8, SPEC. POP., Evac. time, Normal cond., row 7. Delete 3.4, replace with 3.7.

Pages 2, 20, 30, 70, and 96: Replace with revised attached pages.

DIVISION OF TECHNICAL INFORMATION
AND
DOCUMENT CONTROL

Y 3. N88:

ARKANSAS
EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
N	624			1.0		1.5
S	31			1.0		1.5
WITHIN 5 MILES						
NE	1288			1.0		2.0
SE	5623			2.0		3.0
SW	421			1.0		3.0
NW	1023			1.0		2.0
WITHIN 10 MILES						
NE	3956			1.0		3.0
SE	19858			1.0		3.0
SW	1365			1.0		3.0
NW	2163			1.0		3.0

FOOTNOTES: _____

_____

_____

_____

CONFIDENCE OF ESTIMATES: POOR

_____

DAVIS-BESSE

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
180°	800		0.7	1.3		
WITHIN 5 MILES						
LEFT	1600		1.2	2.3		
RIGHT	1800		1.3	2.5		
WITHIN 10 MILES						
LEFT	6600		2.0	4.0		
RIGHT	11800		3.5	7.0		

FOOTNOTES: _____

_____

_____

_____

CONFIDENCE OF ESTIMATES: POOR _____

FT. CALHOUN

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
G-R	187		0.2		3.4	
IOWA						
WITHIN 5 MILES						
N-R	7382		0.7		4.0	
G-M	892		0.3		3.6	
IOWA						
WITHIN 10 MILES						
N-R	8317		0.9		4.2	
G-M	2374		0.7		3.9	
IOWA			0.3	0.7	2.1	2.4

FOOTNOTES: _____

CONFIDENCE OF ESTIMATES: POOR

POINT BEACH

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES						
LPZ*	265		0.9	1.8	0.9	2.0
WITHIN 5 MILES						
NW-N	338		0.8	1.8	0.9	2.0
SW-WNW	519		1.1	2.3	1.3	2.5
SSE-SSW	388		0.5	1.8	0.9	2.0
WITHIN 10 MILES						
NW-N	1613		1.1	3.0	1.7	3.3
SW-WNW	4339		2.8	5.5	3.5	6.5
SSE-SSW	15738	1200	3.5	7.5	4.0	8.0

FOOTNOTES:

*The low population zone (LPZ) area approximates one 180° sector with a two mile radius as specified in the reporting format provided by the licensee. A second 180° sector consists of the remainder of the two mile radius area over Lake Michigan.

CONFIDENCE OF ESTIMATES: ADEQUATE

VERMONT YANKEE

EVACUATION TIME ESTIMATES

SECTORS	PERMANENT POPULATION	TRANSIENT POPULATION	PERMANENT POP. RESPONSE NORMAL CONDITIONS (Hrs)	PERMANENT POP. RESPONSE ADVERSE CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	GENERAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME NORMAL CONDITIONS (Hrs)	SPECIAL POP. EVAC. TIME ADVERSE CONDITIONS (Hrs)
WITHIN 2 MILES								
P-E	2060						1.2	1.3
F-N							1.2	1.3
WITHIN 5 MILES								
C-F	2240						1.3	1.5
G-K	850						1.2	1.4
L-P	500		0.3	0.6	0.9	1.4		
Q-B	3400						1.2	1.4
WITHIN 10 MILES								
C-F	3100		0.5	1.1	1.1	1.8		
G-K	6800						1.9	2.7
L-P	1150		0.4	0.9	1.0	1.6		
Q-B	14450						3.0	3.0

FOOTNOTES: EVACUATION TIMES ONLY REPORTED FOR CONTROLLING CONDITION, EITHER GENERAL POPULATION EVACUATION OR SPECIAL FACILITIES EVACUATION.

CONFIDENCE OF ESTIMATES: ADEQUATE

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